2017

Occupying the interdisciplinary space: A visualisation of Australia's economic history field, 1950 – 1991

Claire Elizabeth Finigan Wright
University of Wollongong

Occupying the interdisciplinary space: A visualisation of Australia's economic history field, 1950 – 1991

By

Claire Elizabeth Finigan Wright

A thesis submitted in fulfilment of the requirements for the award of the degree

Doctor of Philosophy

From

University of Wollongong

School of Humanities and Social Inquiry

2017

Declaration

This thesis contains no material which has been accepted in whole or in part for a degree or diploma in any other university.

I affirm that the intellectual content of this thesis is the product of my own work. I certify that, to the best of my knowledge, all sources have been acknowledged in the text.

Claire Wright

27th July, 2017

Acknowledgments

It takes a village to raise a PhD student. I have been kindly assisted, both in person and remotely, by archivists and librarians at the Universities of Adelaide, Western Australia, La Trobe, Flinders, New England, Melbourne, the Australian National University, the National Library of Australia and the State Library of New South Wales. I have received tuition support and a research stipend from the Australian Government Research Training Program, and I gratefully acknowledge research funding for travel and fieldwork activities from the Faculty of Law, Humanities and the Arts at the University of Wollongong.

I am incredibly grateful to my 'sources': the wonderful men and women who agreed to be interviewed for the project. I hope the story I tell does them justice. My work has been greatly supported by the Economic History Society of Australia and New Zealand (EHSANZ), and my regular hangout – the Asia-Pacific Economic and Business History (APEBH) conference. Thanks also to participants at History of Economic Thought Society of Australia (HETSA), Alliance of Digital Humanities Organisations (ADHO) and Sydney Intellectual History Network (SIHN) conferences, and seminars at the University of Wollongong and Western Sydney University. I am grateful to the staff in the Faculties of Business and Law, Humanities and the Arts at the University of Wollongong, who together have developed my skills as a teacher and scholar.

This thesis has benefitted from discussion and feedback from Professor Chris Lloyd, Dr William Coleman, Professor David Merrett, Evan Milner, and Dr Ben Maddison, with particular intellectual and emotional investment from Claire Seaman and Miesje de Vogel. My friends and family have been incredibly patient and supportive, despite being coerced into learning more about Australian economic history than they ever really wanted or needed. Special mention should be made of Rebecca Barrow. Her positivity throughout, and help editing this thesis in its final stages, has been wonderful.

My greatest debt is to my friend, mentor and supervisor, Professor Simon Ville. Professor Ville has been an extraordinary teacher, perhaps most by significantly by setting an example of a capable and inquisitive scholar. Our work together on various projects has demonstrated the value of trust in collaboration, and the joy that can be derived if this process works well. These projects, along with a firm yet encouraging hand on the tiller of my thesis, has made my training one of the truest forms of academic apprenticeship. Those who read this piece will find Professor Ville's imprint on every page, just as he has made an imprint on my mind and my heart. Thank you.

Abstract

This thesis examines Australia's economic history field in the post-WWII decades. It focusses on the way in which social relationships and institutional developments contributed to the development of intellectual traditions, and an academic field over time. Rather than simply examining pioneering scholars, the thesis analyses the oft-neglected 'community' in intellectual history.

Australian economic history is understood through interconnections – between scholars, texts, ideas, and domains of knowledge. The social and knowledge networks for the field were intertwined, and by examining both, this thesis offers a detailed analysis of the development of this academic community. Social interactions – in the form of geographic proximity or collaboration – have been analysed using social network analysis. This provides an overall snapshot of connections for the field. Oral history interviews complement the social networks, offering a detailed examination of the nature and effect of these social ties. Ideas have been determined through qualitative textual analysis, with differences in approach and interpretation used to determine intellectual traditions. Citation analysis provides a quantitative perspective, examining similarity between authors based on the pieces of knowledge incorporated into their published work. The use of qualitative, quantitative, and visual sources is a pioneering example of the use of digital methods in intellectual history.

Australia's economic history community emerged as a key intersection of the humanities and social sciences in the post-WWII decades. The 1950s and 1960s were characterised by an intellectual movement. Expansion of staff, students, and institutional space led to the development of social interactions and a greater volume of research output. Joint activities and dense ties between scholars at the Australian National University (ANU) were key to the propagation of the orthodox school, with this becoming the dominant intellectual current in Australian economic history. In the 1970s and 1980s, decentralisation of social ties contributed to the 'spatial placement of ideas', and several well-developed social and intellectual groups. By analysing the interdependence of institutions, social interactions, and ideas, this thesis highlights the contextual dependence of knowledge in economic history, and provides insights into the operation of this scholarly field over the long run.

Contents

List of tables

List of figures

Abbreviations

ABS	Australian Bureau of Statistics
AEHR	*Australian Economic History Review*
ANU	Australian National University
ANUA	ANU archives
CUC	Canberra University College (Canberra-based campus of University of Melbourne)
ECOPS	Monash University's Faculty of Economics and Political Science
EHSANZ	Economic History Society of Australia and New Zealand
IDR	Interdisciplinary research
IDRF	Interdisciplinary research field
RBA	Reserve Bank of Australia
RSSS	Research School of Social Sciences (research arm of the ANU)
SNA	Social network analysis
UNE	University of New England
UNSW	University of New South Wales
UWA	University of Western Australia

1. The development of a scholarly community in Australia

The story of Australia's economic history field is remarkable. From humble beginnings at the start of the twentieth century, the field became a mature domain of knowledge in the post-WWII decades. The long-run perspective provided by economic history meant it was seen by universities and governments as necessary to advance the prosperity of Australia. An expanding higher education sector provided ample student numbers and research funding, and the subject became compulsory in a number of economics and business degrees.[1] The economic history community itself was characterised by growing numbers of scholars and students, innovative research, and a young staff determined to make a difference in the world. Economic history truly 'arrived' in the post-WWII decades.

This thesis is motivated by the unique pattern of growth of the field. Expansion matched that of similar disciplines, and yet it was a field that was inherently vulnerable.[2] Its strong relationship with economics and history meant it was unable to truly divorce itself of their influence. This is not simply the story of an intellectual community, but of shifting disciplinary identity within a small group caught between the social sciences and the humanities. The analysis illuminates the nature of different types of scientific inquiry, and the opportunities and challenges associated with knowledge that integrates between them.

It is also a prescient time to reflect on the progress of economic history. After impressive expansion in the post-WWII era, the field declined in staff, students and resources throughout the 1990s. A hostile institutional environment, combined with disinterest from parent disciplines, left economic history bruised, and at risk of disappearing from the intellectual landscape.[3] Recently, a revival appears to be taking place, with historians inspired by the history of capitalism, the rise of multinationals, and histories of global commodity chains, while those in economics are returning to an emphasis on long-run

---

[1] C. Schedvin, 'Economic history in Australian universities, 1961-1966', *Australian Economic History Review*, 7, 1, 1967, p.5.
[2] See discussion of comparable rates of growth in chapters 6 and 8.
[3] D. Meredith and D. Oxley, 'The rise and fall of Australian economic history', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; S. Ville and C. Wright, 'Neither a discipline nor a colony: Renaissance and re-imagination in economic history', *Australian Historical Studies*, 48, 2, 2017; C. Wright and S. Ville, 'Visualising interdisciplinary agency: the life cycle of economic history in Australia', *Minerva*, 2017.

patterns of contemporary crises.[4] At this unique juncture in economic history's life cycle in Australia, it is important to understand the long-run development of the field.

This thesis will examine the development of the Australian economic history field through the collective social and professional lives of its scholars. It will focus on the interaction of individuals, institutions, time, and space in the formation of intellectual traditions. By analysing the community, rather than just the prominent scholars, the thesis democratises the history of the group. While most intellectual history focusses on great men and their published works,[5] the analysis recognises the variety of ways that intellectual influence can occur, and the effect of the 'collective' on the development of knowledge.

While interest has certainly focussed on leading scholars, intellectual communities are gaining more interest as units of study. Recognition of the social and contextual factors that affect the production of knowledge necessarily invites analysis of the environment in which intellectual traditions exist.[6] However, the nature and impact of these connections are rarely analysed systematically.[7] This project will examine a number of different professional connections between scholars, integrating this with a discussion of intellectual trends in the group. This is a pioneering attempt to apply quantitative and visual social network analysis to the study of intellectual communities.

---

[4] Ville and Wright, 'Renaissance and re-imagination'.

[5] See the special issue of *History of Political Economy* (Spring 2011) that identifies and attempts to redress this unbalance.

[6] D. Crane, *Invisible colleges: Diffusion of knowledge in scientific communities*, Chicago: University of Chicago Press, 1972; T. Kuhn, *The structure of scientific revolutions*, Chicago: University of Chicago Press, [1962] 1970; M. Mulkay, 'Three models of scientific development', *The Sociological Review*, 23, 3, 1975; M. Mulkay, G. Gilbert and S. Woolgar, 'Problem areas and research networks in science', *Sociology*, 9, 1, 1975; N. Mullins, *Theory and theory groups in contemporary american sociology*, New York: Harper & Row, 1973; R. Whitley, *The intellectual and social organisation of the sciences*, Oxford: Clarendon, 1984; D. Hands and P. Mirowski, 'Harold Hotelling and the neoclassical dream', in Backhouse, Hausman, Maki and Salanti, ed., *Economics and methodology: Crossing boundaries*, London: Macmillan, 1996; P. Mirowski, *More heat than light*, Cambridge: Cambridge University Press, 1989; E. Weintraub and P. Mirowski, 'The pure and applied: Bourbakism comes to mathematical economics', *Science in Context*, 7, 2, 1994.

[7] Beyond a small number of studies that map (without analysing) relationships in intellectual communities, such as Harvard University, 'Economists in Cambridge', retrieved 4th August 2015, from http://www.fas.harvard.edu/~histecon/visualizing/graphing/economists.html; M. Krischel and H. Fangerau, 'Historical network analysis can be used to construct a social network of 19th century evolutionists', in Fangerau, Geisler, Halling and Martin, ed., *Classification and evolution in biology, linguistics and the history of science*, Stuttgart: Franz Steiner Verlag, 2013; Shakeosphere, 'Shakeosphere: Mapping early modern social networks', retrieved 4th August 2015, from http://shakeosphere.lib.uiowa.edu/; Six Degrees of Francis Bacon, 'Six degrees of Francis Bacon: Reassembling the early modern social network', retrieved 4th August 2015, from http://sixdegreesoffrancisbacon.com/.

The development of this field owed much to institutional factors. The configuration of university departments, recruitment practices, and joint activities exerted considerable influence over the disciplinary allegiances of economic historians, and the approach they adopted in their work. Intellectual developments were thus inextricably tied to the local environments of scholars. Existing analyses of the economic history field make only passing mention to these forces.[8] Examining the influence of social and institutional context will emphasise the interdependence of economic history with local environments. The analysis will also provide a roadmap for current and future scholars in the field. It highlights the complementarity of different traditions, the interpretive frameworks that have been useful in the past, and the areas in which there is more work to be done. For those embarking on a career in Australian economic history, or those looking for a new research direction, this history of their community will be, hopefully, comforting and informative.

1.1. Approach and scope

The story of Australian economic history will be told as one of connections. It is the foundation on which the conceptual framework and methodology is built, with interactions between scholars contributing to the development of intellectual traditions. Briefly, joint activities associated with a common 'focus' (such as a workplace or neighbourhood) leads to targeted communication between scholars, which is a key vehicle through which ideas might develop.[9] Joint activities could include university seminars, collaboration, or involvement in the national journal or society. This focus on interpersonal connections, and local environments is an appropriate one, as the group was constrained by a particular time and place.

Social network analysis (SNA) will be used to systematically analyse interactions between scholars. Complementing the qualitative methods, SNA provides a visual and quantitative snapshot of this community, and important explanations for the way in which social ties may affect the development of intellectual traditions. Although SNA has been used in a range of contexts, it is only very rarely applied to the study of historical intellectual

[8] See chapter 2.
[9] This is based on S. Feld, 'The focused organisation of social ties', *American Journal of Sociology*, 86, 5, 1981. See chapter 3 for more.

communities.[10] The data necessary for such analysis are generally laborious to compile, and – depending on the community – potentially unobtainable. In this case, fortunately, the community is comparatively small and the time period of interest is relatively contemporary. Records are fulsome, and a number of prominent scholars of the time have been available for consultation. Oral history interviews have been conducted with many of the important members of this community; networks based on archival university records and collaboration will be examined; and over 200 texts of economic history will be analysed for approach, interpretation, and citations. This combination of methods – with the aim of understanding the interplay of the social and knowledge networks – will be used to obtain the most comprehensive picture of the development of this community.

The focus will be on the Australian economic history field between 1950 and 1991. This was the main period of growth and development for the field. The discussion will begin in 1950 because a number of key scholars, after training in the immediate post-WWII period, began their academic careers around this time. The discussion will then fall into two time periods. The 1950s and 1960s (chapters 6 and 7) were a period of expansion for the economic history community, with the recruitment of scholars, training of graduate students, and development of an intellectual movement. The 1970s and 1980s (chapters 8 and 9) involved consolidation of social ties, with dense interactions at the major geographic centres contributing to the 'spatial placement of ideas'.

The analysis will end in 1991. There were several major collaborations in the late-1980s, which represented the culmination of the joint work of the time. The government's Dawkins Reforms came into effect in the late-1980s, which significantly changed the higher education landscape. Noel Butlin – a key member of the community – passed away in 1991, and a number of senior members of the group retired or moved on in the following years. The 1990s were thus characterised by new leaders, a different institutional environment, and a community set on a new intellectual trajectory. Because of this, the 1990s onwards warrants its own (separate) analysis. It will be helpful to keep in mind that whilst these temporal characteristics fit the broad experience of the economic history field, time lags exist in any intellectual community. Research may take a decade or more to complete, social interactions may only have an impact after 20 years and ideas, once written, may not find intersections with the work of others for some time.

---

[10] An exception is a project by this author that analyses the interwar Viennese economics community: C. Wright, 'The 1920s Viennese intellectual community as a centre for ideas exchange: A network analysis', *History of Political Economy*, 48, 4, 2016.

In terms of personnel, the boundaries of the 'economic history milieu' are permeable. While there was a relatively defined group of key scholars, there were others who may have been associated with the group, but who were primarily members of other disciplines. This has presented a major challenge for this project. The community will be examined as a series of concentric circles, beginning with the 'core' scholars and moving out to include a greater number of supporting players.

In order to understand Australian economic history within its social and institutional context, the analysis will focus on those economic historians employed by the major Australian higher education institutions, and working on Australian economic history topics. Scholars who held substantial appointments in separate departments of economic history are included. Those located in Australia who contributed to the literature – determined through the key publication channels such as the journal, joint works, and major monographs – will also be included. Those working overseas on Australian topics will generally be excluded (unless they collaborated with colleagues at home).[11] These criteria also focus on scholars working within academia, excluding work done in the public service or private sector.

From this 'core' group, the wider economic history community will be determined through collaboration. Based on the corpus of key texts, co-authors, contributors to edited works, and sub-authors will all be considered part of the social and knowledge networks for the field. Collaborations within economic history, and from adjacent disciplines, are important for understanding economic history's connections with other domains of knowledge. The scope of scholars and texts will be representative rather than exhaustive, with an emphasis on the main organisations, communication channels, and publication outlets for this field.

1.2. Thesis structure

The body of the thesis will be divided into three parts. Part one (chapters 2 – 5) will present a scaffold for the empirical analysis, justifying the chosen case study, and conceptual and methodological frameworks. Chapter 2 will review previous work in intellectual history, and the way in which economic history has been understood as a scholarly community. Chapters 3 and 4 will appraise the conceptual and methodological foundations of the analysis. Chapter 5 will present the intellectual and institutional

[11] This category includes only a very small number of researchers.

background of the case study, including the expansion of economic history as a distinctive domain of knowledge within the modern university sector.

Part two (chapters 6 and 7) will analyse the Australian economic history field in the 1950s and 1960s. This was a period of expansion for the group, with the establishment of an institutional framework, the formation of social ties, and the convergence of scholars on a dominant intellectual tradition. Part three (chapters 8 and 9) will examine the community's period of consolidation – the 1970s and 1980s – including the development of dense social interactions at a number of geographic centres, the operation of national academic infrastructures, and the fragmentation of published work into several well-developed perspectives. Chapters 6 and 8 will analyse the social network for this community, examining the formal and informal interactions between scholars, the motivations they had for forming these connections, and the effect these may have had on their ideas. Chapters 7 and 9 will relate the social structure to the pattern of intellectual trends. The development of the 'orthodox school' will be of central importance in chapter 7, and the 'spatial placement of ideas' takes centre stage in chapter 9.

Part one: The framework

This thesis examines the development of Australia's economic history community in the post-WWII period, focussing on the interdependence of institutions, social relationships, and ideas in the field. This section examines the relevant secondary material. It discusses the approaches taken, and the conclusions drawn, about the development of intellectual communities and Australia's economic history field.

The study of Australian economic history draws on previous work that has analysed this field in Australia and abroad. Chapter 2 outlines the ways in which economic history is understood as an intellectual community. The project contributes to the international economic history literature by highlighting the importance of context, social relationships, and professional activities for the field. It also adds to the conventional narrative of Australian economic history by incorporating the social and professional roles of scholars, disaggregating trends from the national to the local level, and incorporating the effects of local person-to-person interactions in the development of intellectual trends. This approach is novel for the analysis of intellectual communities. While the importance of organisations and social relationships has been recognised, the systematic analysis of social ties is underrepresented in intellectual history research. By applying social network analysis to the Australian economic history community, this is a pioneering study in the use of digital methods in intellectual history.

The project is informed by theoretical frameworks that explain the development of social and knowledge networks. Chapter 3 appraises various explanations for the formation of social connections, intellectual traditions, and academic communities. Social networks may form based on a variety of internal or external motivations. These connections are a prominent vehicle through which ideas diffuse, with social ties contributing to the development of intellectual traditions. Academic fields develop through a combination of social and intellectual forces, with the type of knowledge and intensity of interactions determining the characteristics of the group. Intellectual communities may progress through a series of life-cycle stages, with the emergence, maturation, and 'death' of intellectual movements due to a combination of social and intellectual factors.

Based on assumptions about the potential avenues for communication and intellectual change, chapter 4 justifies the procedures taken in the empirical analysis. Oral history, and social network maps based on co-location and collaboration, are the primary methods used to understand the social network. Qualitative analysis of published work, complemented by quantitative citation analysis, is used to analyse the knowledge

network. The combination of qualitative, quantitative, and visual sources is innovative for the study of intellectual history, and presents a rich, detailed picture of the development of this community.

An understanding of Australian economic history is also embedded within its intellectual and institutional context. Chapter 5 outlines the background to the empirical analysis. Throughout the nineteenth and twentieth centuries, the international economic history field formed, driven by the democratisation of higher education, and the professionalisation of the history and economics disciplines. Postwar reconstruction led to the expansion of higher education in most industrialised nations, and economic history's emphasis on the long-term process of growth embedded the field as a key intersection of the humanities and social sciences. The Australian economic history field expanded in the buoyant higher education sector of the 1950s and 1960s.

2. Understanding economic history

The analysis of Australia's economic history community draws on previous work that has analysed the economic history field in Australia and abroad, as well as work in intellectual history that examines the development of academic communities. This highlights the contribution of this project in incorporating social and intellectual developments into the analysis of intellectual traditions for this field.

2.1. The development of the economic history field

2.1.1. The international community

This thesis draws on previous work that examines the economic history field in various national contexts. The development of economic history in the US and Britain has been covered the most comprehensively.[1] The literature generally examines the main

[1] A. Coats, 'The historical context of the 'new' economic history', *Journal of European Economic History*, 9, 1, 1980; A. W. Coats, 'Disciplinary self-examination, departments, and research traditions in economic history: The Anglo-American story', *Scandinavian Economic History Review*, 38, 1, 1990; A. Cole, 'Economic history in the United States: Formative years of a discipline', *The Journal of Economic History*, 28, 4, 1968; C. de Rouvray, ''Old' economic history in the United States: 1939-1954', *Journal of the History of Economic Thought*, 26, 4, 2004; P. Hudson, 'Economic history in Britain: The 'first industrial nation'', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; N. Lamoreaux, 'Beyond the old and the new: Economic history in the United States', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic*

intellectual developments, including discussions of the main approaches, interpretations and debates.[2] Institutional factors have been analysed more rarely, though the structure of universities, the nature of government higher education reform, and the development of professional organisations have been covered for the US.[3] Crucially, these studies link institutional changes to the intellectual development of US economic history, with the innovativeness and speed of adoption of cliometrics argued to be due to a general expansion of the higher education system and the excitement and competitiveness of Purdue University (the site of the initial cliometrics seminars) in the postwar period.

For Britain, most focus on the field's published work, reporting on significant scholars and research themes.[4] A discussion of the expansion of the subject within universities has been included by Hudson, however this is used as evidence of the growth of the field rather than as an explanation for its development.[5] An exception is work by Coats and Coleman, who have argued that separate departments of economic history contributed to the insularity and lethargy of the British practitioners in the postwar period.[6]

Smaller national communities have been analysed more rarely, with this redressed most recently in the Boldizzoni and Hudson's edited *Routledge handbook of global economic history*. They have aimed to incorporate a variety of voices to examine the various ways of studying economic history across the world.[7] Most chapters in this volume have adopted a *contextual* approach, examining the way in which national histories and economies have

---

history, London: Routledge, 2015; D. Mitch, 'Economic history in departments of economics: The case of the University of Chicago, 1892 to the present', *Social Science History* 35, 2, 2011; D. Coleman, *History and the economic past: An account of the rise and decline of economic history in Britain*, Oxford: Clarendon Press, 1987; N. Harte, ed. *The study of economic history*, London: Frank Cass, 1971; G. M. Koot, 'English historical economics and the emergence of economic history in England', *History of Political Economy*, 12, 2, 1980; G. M. Koot, *English historical economics, 1870 – 1926: The rise of economic history and neomercantilism*, Cambridge, MA: Cambridge University Press, 1987; G. M. Koot, 'Historians and economists: The study of economic history in Britain ca. 1920–1950', *History of Political Economy*, 25, 4, 1993. Also briefly in J. Lyons, L. Cain and S. Williamson, ed. *Reflections on the cliometrics revolution: Conversations with economic historians*, New York: Routledge, 2008; A. Rojas, 'Cliometrics: A market account of a scientific community (1957 - 2006)', *Lecturas de Economia Universidad de Antioquia-Lecturas de Economia*, 66, 1, 2007; R. Whaples, 'Where is the consensus among American economic historians? The results of a survey on forty propositions', *The Journal of Economic History*, 55, 1, 1995.

[2] See chapter 5 for an overview of these trends.

[3] Coats, 'The Historical Context'; Coats, 'Disciplinary self-examination'; Lyons, et al., ed. *Reflections*.

[4] Coats, 'Disciplinary self-examination'; Coleman, *History and the economic past*; Harte, ed. *Economic history*; P. Hudson, ed. *Living economic and social history*, Glasgow: Economic History Society, 2001; Koot, 'English historical economics'; Koot, *English historical economics*; Koot, 'Historians and economists'; Lyons, et al., ed. *Reflections*.

[5] Hudson, ed. *Living Economic and Social History*; Hudson, 'Economic history in Britain'.

[6] Coats, 'Disciplinary self-examination'; Coleman, *History and the economic past*.

[7] F. Boldizzoni and P. Hudson, *Routledge handbook of global economic history*, London: Routledge, 2015.

shaped the practice of economic history.[8] Most chapters combine this perspective with a detailed review of literature. This treats each national context independently, with scholars only affected by their national context. A small number of chapters have examined institutional factors, including a discussion of the higher education environment, the institutional 'place' of economic history, the development of professional societies, and the effect of these on the approach to the subject.[9] A similar analysis of institutions has been adopted in separate pieces that examine economic history in Denmark and Japan.[10]

Other discussions of the field in national contexts generally adopt an intellectual approach.[11] These studies review research done in the subject in a particular style, or changes to the approach over time. The causes of prosperity or decline in the field are sometimes directly attributed to these intellectual changes, with innovations, controversies and debates contributing to the success of the group.[12] This thesis contributes to the discussion of economic history by highlighting the institutional and social elements of change in the field.

---

[8] This is an explicit aim of the volume, see introduction in Boldizzoni and Hudson, *Global economic history*.

[9] F. Boldizzoni, 'The flight of Icarus: Economic history in the Italian mirror', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; E. Aerts and U. Bosma, 'The low countries, intellectual borderlands of economic history', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; Lamoreaux, 'Beyond the old and the new'; Meredith and Oxley, 'Australian economic history'; A. Olokoju, 'Beyond a footnote: Indigenous scholars and the writing of West African economic history', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; B. Freund, 'Reflections on the economic history of South Africa', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015.

[10] Denmark: P. Boje, 'Danish economic history — Towards a new millenium', *Scandinavian Economic History Review*, 50, 3, 2002. Japan: H. Borton, 'Modern Japanese economic historians', in Beasley and Pulleyblank, ed., *Historians of China and Japan*, London: Oxford University Press, 1961; M. Mehl, *Historiography and the state in nineteenth-century Japan*, London: Macmillan, 1998; O. Saito, 'A very brief history of Japan's economic and social history research', *XVIIth World Economic History Congress*, 3 - 7 August, 2015; K. Sugihara, 'The socio-economic history society of Japan', *Information Bulletin of the Union of National Economic Associations in Japan*, 21, 1, 2011.

[11] India: T. Roy, 'The rise and fall of Indian economic history 1920–2013', *Economic History of Developing Regions*, 29, 1, 2014. Africa: G. Austin and S. Broadberry, 'Introduction: The renaissance of African economic history', *Economic History Review*, 67, 4, 2014; A. G. Hopkins, 'The new economic history of Africa', *The Journal of African History*, 50, 02, 2009; M. Jerven, 'A clash of disciplines? Economists and historians approaching the African past', *Economic History of Developing Regions*, 26, 2, 2011. Latin America: S. Caulfield, 'The history of gender in the historiography of Latin America', *Hispanic American Historical Review*, 81, 3, 2001; J. H. Coatsworth, 'Structures, endowments, and institutions in the economic history of Latin America', *Latin American Research Review*, 40, 3, 2005; E. Kuznesof and R. Oppenheimer, 'The family and society in nineteenth-century Latin America: An historiographical introduction', *Journal of family history*, 10, 3, 1985; J. Martinez-Alier, 'Ecology and the poor: A neglected dimension of Latin American history', *Journal of Latin American Studies*, 23, 03, 1991.

[12] Austin and Broadberry, 'African economic history'; Hopkins, 'New economic history'.

2.1.2. Australia

The development of Australia's economic history community has also attracted some interest.[13] Most recently, a chapter on Australian economic history was included in Boldizzoni and Hudson's edited volume.[14] The narrative of the development of Australia's economic history field has generally been agreed on in the literature. The field developed from the early twentieth century, with the intellectual foundations laid by Timothy Coghlan, Edward Shann and Brian Fitzpatrick. There were a number of other smaller contributions in the interwar period, and by the 1950s the field emphasised banking, industry studies, and primary industries.[15] The publication of Noel Butlin's two main volumes in the early 1960s was a significant event for the field,[16] with the approach changing to emphasise urban areas, the growth of non-primary industries, internal determinants of growth, and the application of national income accounting to economic history.[17] His work inspired a wealth of other research in a similar vein, with the field developing a closer relationship with the economics discipline.[18] Butlin's contribution gave the field focus and identity, and although economists generally approved, historians

---

[13] W. Coleman, 'The historiography of Australian economic history', in Ville and Withers, ed., *Cambridge economic history of Australia*, Melbourne: Cambridge University Press, 2015; B. Fitzpatrick, 'Counter revolution in Australian historiography?', *Meanjin Quarterly*, 22, 2, 1963; T. Jetson, 'Economic history – the neglected relative of Australian historiography?', *Tasmanian Historical Studies*, 15, 1, 2010; C. Lloyd, 'Economic history and policy: Historiography of Australian traditions', *Australian Journal of Politics and History*, 41, 3, 1995; C. Lloyd, 'Analytical frameworks of Australia's economic history', in Ville and Withers, ed., *Cambridge economic history of Australia*, Melbourne: Cambridge University Press, 2015; Schedvin, 'Economic history in Australian universities'; C. Schedvin, 'Midas and the merino: A perspective on Australian economic historiography', *The Economic History Review*, 32, 3, 1979; W. Sinclair, 'Economic history', in Borchardt, ed., *Australians, a guide to sources*, Sydney: Fairfax, Syme & Weldon, 1987; J. Pincus and G. Snooks, 'The past and future role of the Australian economic history review: Editorial reflections and aspirations', *Australian Economic History Review*, 28, 2, 1988; C. Lloyd, 'Can economic history be the core of social science? Why the discipline must open and integrate to ensure the survival of long-run economic analysis', *Australian Economic History Review*, 37, 3, 1997; S. Morgan and M. Shanahan, 'The supply of economic history in Australasia: The *Australian Economic History Review* at 50', *Australian Economic History Review*, 50, 3, 2010.

[14] Meredith and Oxley, 'Australian economic history'.

[15] Schedvin, 'Midas and the merino'.

[16] N. G. Butlin, *Australian domestic product, investment and foreign borrowing 1861 -1938/9*, London: Cambridge University Press, 1962; N. G. Butlin, *Investment in Australian economic development, 1861 - 1900*, London: Cambridge University Press, 1964.

[17] Coleman, 'Historiography'; Lloyd, 'Economic history and policy'; Schedvin, 'Midas and the merino'; Sinclair, 'Economic history'.

[18] Sinclair, 'Economic history'; Meredith and Oxley, 'Australian economic history'.

kept their distance.[19] Following from this intellectual success, the 1960s and 1970s were characterised by expansion of scholars, students, and research.[20]

Generally, an intellectual approach is adopted. Coleman has focussed on the main ideas of eminent practitioners, using biographical details to assist his account.[21] Coleman has adopted a contextual approach in part of his analysis, emphasising the shared experience for Noel and Syd Butlin, who were economic historians, and brothers, who both grew up the Maitland region of New South Wales.[22] Others have discussed the broad intellectual developments in the field, with the analyses guided by the texts, themes and debates that have been influential in the community.[23] Lloyd's work has been the most historiographical, analysing research through the lens of various philosophical foundations.[24] The unit of analysis has been the 'text' for the most part, with practitioners evaluated based on their contribution to the published work of the field. While texts are undeniably important, this focus disregards the numerous activities that make up the job of a scholar. Involvement in the journal has been covered,[25] though the impact of scholars in administrative, collaborative, or mentorship roles is neglected in the literature.

The experience of the field has also been aggregated at the national level, with Butlin's approach seen as the guiding framework for Australian economic history in the post-WWII decades. Some have attempted to define an 'Australian approach', though only very loose unifying characteristics have been identified.[26] Lloyd and Schedvin have argued that the approach had unique origins, developing through Coghlan's emphasis on statistics combined with Kuznets' national income accounting.[27] Schedvin has argued that a major characteristic of Australian economic history has been to "under-interpret", letting the numbers speak for themselves.[28] Coleman, on the other hand, has argued that there is no uniform style in the field, though conceding that the practice was distinctive to both

[19] Schedvin, 'Midas and the merino'.
[20] Coleman, 'Historiography'; Jetson, 'Economic history'; Lloyd, 'Economic history and policy'; Lloyd, 'Core of social science?'; Morgan and Shanahan, 'Supply of economic history'; Pincus and Snooks, 'Editorial reflections'; Schedvin, 'Midas and the merino'; Sinclair, 'Economic history'; Lloyd, 'Analytical frameworks'.
[21] Coleman, 'Historiography'.
[22] Coleman, 'Historiography'.
[23] Jetson, 'Economic history'; Lloyd, 'Economic history and policy'; Schedvin, 'Midas and the merino'; Sinclair, 'Economic history'; Lloyd, 'Analytical frameworks'.
[24] Lloyd, 'Economic history and policy'; Lloyd, 'Core of social science?'; Lloyd, 'Analytical frameworks'.
[25] Morgan and Shanahan, 'Supply of economic history'.
[26] Coleman, 'Historiography'; C. Schedvin, 'Australian economic history', *Economic Record*, 65, 190, 1989; Lloyd, 'Analytical frameworks'.
[27] Lloyd, 'Analytical frameworks'; Schedvin, 'Australian economic history'.
[28] Schedvin, 'Australian economic history', p.288.

Britain and the US.[29] By aggregating nationwide, the current literature assumes that the experience and influence of scholars was uniform throughout Australia.

The focus on published work and the national aggregation of intellectual trends largely disregards the impact of context in an intellectual community. A contextual approach has been adopted in Meredith and Oxley's recent chapter, with the authors arguing that Australia's background as an affluent British colony – rich in resources and with large urban domestic markets – moulded the concerns of economic historians.[30] They have also incorporated some discussion of institutional context, commenting that the place of economic historians within economics departments in the post-WWII period shaped recruitment and intellectual developments, and isolated scholars from the history discipline. They have argued that free-standing departments were beneficial for the vibrancy of the group, and that the current state of reintegration with larger departments "inevitably narrows the disciplinary backgrounds of practitioners and thus the intellectual influence on the discipline, reduces research output and decimates teaching capacity, constraining future prospects".[31] While this rightly recognises that intellectual trends do not exist in a vacuum, there has been very little systematic analysis of the way in which institutional (or social) context has affected ideas in this field.

The current study thus contributes to the narrative of the Australian economic history community by engaging with the diverse paths along which scholars may influence each other. It disaggregates the community's experience from the national to the local level, and considers the impact of geographic proximity, institutions, and local person-to-person interactions. By systematically analysing a range of social, institutional, and intellectual forces, this thesis provides a detailed picture of the development of the economic history field that more closely resembles the lived experience of scholars.

There has been some discussion of the impact of overseas trends, though the influence of these on the Australian community are poorly understood. In particular, the effect of the US cliometrics approach has been disputed. Some have argued that although cliometrics would be a natural progression from Butlin's quantitative work, this did not, in itself, qualify as cliometrics.[32] This is because the orthodox approach seeks to explain concrete processes of economic change rather than constructing "instrumental, ahistorical"

---

[29] Coleman, 'Historiography'.
[30] Meredith and Oxley, 'Australian economic history'.
[31] Meredith and Oxley, 'Australian economic history', p.86.
[32] Coleman, 'Historiography'; Jetson, 'Economic history'; Lloyd, 'Economic history and policy'.

models.[33] On the other hand, others have argued that "there has been no serious challenge to cliometrics in this country".[34] There has been very little analysis of the adoption of British or Canadian economic history in Australia, with only Meredith and Oxley's comment that recruitment from overseas gave the field a more "international flavour".[35] This thesis contributes to the understanding of Australia's place in the international economic history community, by analysing the paths along which global intellectual trends were diffused to the antipodes.

2.2. The place of economic history

While not attracting the same level of self-reflection as larger disciplines, there has been some interest in the complex role of economic history in the academic landscape.[36] Most of this work has focussed on economic history's position as a sub-field of economics.[37] The role of cliometrics has been evaluated, with the close relationship with economics valued for its ability to challenge historical interpretations.[38] However, adherents have conceded that the approach can bombard critics with "unfamiliar formulae, bewildering jargon, and esoteric mathematics".[39] Some have criticised cliometrics, arguing that the existential crisis of economic history in recent decades has been brought about by econometric analysis and the close institutional relationship between economic history and economics within American universities.[40] Boldizzoni has presented a fairly standard critique of cliometrics: economic abstraction has resulted in an historical narrative that responds only to the principles of neoclassical economics, and as such is dependent on changes

---

[33] Lloyd, 'Economic history and policy', p.66.
[34] Schedvin, 'Australian economic history', p.288,
[35] Meredith and Oxley, 'Australian economic history', p.78.
[36] F. Boldizzoni, *The poverty of clio: Resurrecting economic history*, Princeton: Princeton University Press, 2011; C. Cipolla, *Between history and economics: An introduction to economic history*, Oxford: Basil Blackwell, 1991; J. Drukker, *The revolution that bit its own tail: How economic history changed our ideas on economic growth*, Amsterdam: Aksant Academic Publishers, 2006; Hudson, ed. *Living Economic and Social History*; G. Jones, M. van Leeuwen and S. Broadberry, 'The future of economic, business and social history', *Scandinavian Economic History Review*, 60, 3, 2012; Lyons, et al., ed. *Reflections*; P. Mathias, 'Living with the neighbours: The role of economic history', in Harte, ed., *The study of economic history*, London: Frank Cass, 1971; P. Mathias, 'On economic history: The progress of a discipline living with its neighbours', in Harlaftis, Karapidakis, Sbonias and Vaiopoulos, ed., *The new ways of history*, London: IB Tauris, 2010; R. Whaples and R. Parker, *Routledge handbook of modern economic history*, New York: Routledge, 2013.
[37] Drukker, *Revolution that bit its own tail*; Lyons, et al., ed. *Reflections*; D. McCloskey, 'Does the past have useful economics?', *Journal of Economic Literature*, 14, 2, 1976; Rojas, 'Cliometrics'.
[38] Drukker, *Revolution that bit its own tail*; Lyons*, et al.*, ed. *Reflections*.
[39] Lyons*, et al.*, ed. *Reflections*, pp.17, 21.
[40] Boldizzoni, *Poverty of clio*.

within economic theory. In other words, economic history in the cliometric model has become a sub-field of applied economics. This is consistent with other criticisms of cliometrics.[41] It is argued that the heavy use of economic theory and counterfactuals is too simplistic to capture the complexities of long-term economic change.[42]

Discussions of economic history within the history discipline are less common. Comments can be sceptical, including short, acerbic remarks: "economic and econometric historians are still plying their recondite trade in the decent obscurity of learned periodicals, conference volumes and subsidized monographs".[43] Elsewhere, the prognosis has been more optimistic. Recent developments in the history discipline – such as a movement away from the 'cultural turn', greater interest in the history of capitalism, and the rise of global and transnational history – has prompted discussion of economic history within historical journals.[44] Although this dialogue is encouraging, economic history within the humanities has been criticised as being "not sufficiently economic", with too large an emphasis on social and political factors.[45]

These discussions advocate for economic history's colonisation by one or the other of its 'parent' disciplines. However, there has been recognition that economic history is an interdisciplinary field, with inclusive frameworks recommended for the field to successfully occupy the space between larger domains of knowledge.[46] This is complicated, as integration with, and dependence on, both parent disciplines makes it difficult to define the field's main characteristics. As economic history is concerned with production, consumption and distribution, it must utilise economic concepts and

---

[41] Lamoreaux, 'Beyond the old and the new'; Hudson, ed. *Living Economic and Social History*.
[42] R. Floud, 'In at the beginning of British cliometrics', in Hudson, ed., *Living economic and social history*, Glasgow: The Economic History Society, 2001; P. Mathias, 'Still living with the neighbours', in Hudson, ed., *Living economic and social history*, Glasgow: The Economic History Society, 2001; E. Kerridge, 'Looking to the future', in Hudson, ed., *Living economic and social history*, Glasgow: The Economic History Society, 2001.
[43] R. J. Evans, 'Prologue: What is history? - now', in Cannadine, ed., *What is history now?*, Basingstoke: Pagrave Macmillan, 2002, p.9.
[44] K. Lipartito, 'Reassembling the Economic: New Departures in Historical Materialism', *The American Historical Review*, 121, 1, 2016; Ville and Wright, 'Renaissance and re-imagination'; H. Forsyth and S. Loy-Wilson, 'Seeking a new materialism in Australian history', *Australian Historical Studies*, 48, 1, 2017.
[45] W. Rostow, 'The interrelation of theory and economic history', *Journal of Economic History*, 17, 4, 1957, p.520.
[46] Boldizzoni, *Poverty of clio*; Cipolla, *Between history and economics*; Jerven, 'A clash of disciplines?'; Jones, et al., 'Economic, business and social history'; Lyons, et al., ed. *Reflections*; Mathias, 'Living with the neighbours'; Rojas, 'Cliometrics'; P. Toninelli, 'Europe vs North America: On the epistemological background of the 1940–1980 methodological differences in economic history', *Paper presented to the XIII Congress of the International Economic History Association*, 22 - 26 July, 2002; Ville and Wright, 'Renaissance and re-imagination'.

analysis.[47] History, on the other hand, provides the primary sources and the ways of using them which are required to answer these questions.[48] There have been recommendations of co-operation between the various strands of economic history, with a plurality of approaches necessary to bridge the gap between the two disciplines.[49] There has been some reflection on the interdisciplinary role of economic history in Australia.[50] The Australian community has had relatively greater interdisciplinarity than in the US, though there has still been a close relationship with economics.[51] The latter has been blamed for insularity and a loss of relevance within economic history, with scholars recommending greater integration with other humanities and social science disciplines.[52]

Economic history has thus existed in a variety of configurations, with differences in the professional identity of scholars contributing to distinct outcomes for the field. The diverse nature of economic history motivates an examination of its long-term development in the Australian context. The empirical analysis contributes to an understanding of the way in which social and institutional developments have affected the nature of Australian economic history over the long run.

2.3. Intellectual history

Intellectual history, or the study of scholars and scholarly communities over time, is crucial to understanding the nature of Australian economic history. Intellectual history includes a range of approaches to understanding scholars and ideas. In particular, this thesis draws on previous work that has analysed the effect of social and institutional connections on intellectual traditions.

---

[47] Cipolla, *Between history and economics*; Lyons*, et al.*, ed. *Reflections*.
[48] Boldizzoni, *Poverty of clio*; Cipolla, *Between history and economics*.
[49] Jerven, 'A clash of disciplines?'; Jones, et al., 'Economic, business and social history'; Rojas, 'Cliometrics'; Ville and Wright, 'Renaissance and re-imagination'.
[50] Lloyd, 'Core of social science?'; Morgan and Shanahan, 'Supply of economic history'; S. Nicholas, 'The future of economic history in Australia', *Australian Economic History Review*, 37, 3, 1997; Pincus and Snooks, 'Editorial reflections'; Ville and Wright, 'Renaissance and re-imagination'; G. Whitwell, 'Future directions for the Australian Economic History Review', *Australian Economic History Review*, 37, 3, 1997; Wright and Ville, 'Visualising interdisciplinary agency'.
[51] Lloyd, 'Core of social science?'; Nicholas, 'Economic history in Australia'; S. Ville and C. Wright, 'Neither a discipline nor a colony: Renaissance and re-imagination in economic history', *Australian Historical Studies*, 2017.
[52] Lloyd, 'Core of social science?'; Morgan and Shanahan, 'Supply of economic history'; Pincus and Snooks, 'Editorial reflections'; Whitwell, 'Future directions'; Ville and Wright, 'Renaissance and re-imagination'.

The *history of thought* was first advocated in the 1930s, with Arthur Lovejoy examining molecule-like 'unit-ideas' over the course of history.[53] This was an internalist approach, examining ideas independent of the context of each author. This approach remains popular, though it has been criticised for removing the 'reality' from the analysis.[54]

Intellectual history, on the other hand, is generally associated with a contextual approach to the study of ideas. Intellectual history focusses on a well-defined period of time, embedding the ideas of practitioners in their historical context. Within intellectual history, the *sociology of science* argues that different contexts create different intellectual traditions. The Cambridge School of Intellectual History, and Quentin Skinner in particular, are known for this approach.[55] They have criticised the 'bloodlessness' and ahistorical nature of the history of ideas, arguing that an idea can only be understood when it is placed in its larger, historical context.[56] A *biographical* approach, on the other hand, aims to understand the ideas of an individual from within their personal context – including their childhood, education, travels, friendships, personality traits and so on.[57] The *institutional* approach focusses on the formal or informal groups that bring intellectuals together. This perspective analyses the effect of universities or research institutions on the

---

[53] A. Lovejoy, *The great chain of being: A study of the history of an idea*, New York: Harper and Row, 1936.

[54] R. Backhouse, 'How should we approach the history of economic thought, fact fiction or moral tale?', *Journal of the History of Economic Thought*, 14, 3, 1992; D. Hollinger, 'Historians and the discourse of intellectuals', in Higham and Conkin, ed., *New directions in American intellectual history*, Baltimore: Johns Hopkins University Press, 1979; E. Weintraub, *Stabilizing dynamics: Constructing economic knowledge*, Cambridge: Cambridge University Press, 1991; D. Wickberg, 'Intellectual history vs. the social history of intellectuals', *Rethinking History: The Journal of Theory and Practice*, 5, 3, 2001.

[55] Q. Skinner, 'Meaning and understanding in the history of ideas', *History and Theory*, 8, 1, 1969.

[56] M. Bevir, 'Mind and method in the history of ideas', *History and Theory*, 36, 1, 1997; A. Brett, 'What is intellectual history now?', in Cannadine, ed., *What is history now?*, London: Palgrave Macmillan, 2002; J. Dunn, 'The identity of the history of ideas', *Philosophy*, 43, 1, 1968; J. Levine, 'Intellectual history as history', *Journal of the History of Ideas*, 66, 2, 2005; E. Perreau-Saussine, 'Quentin Skinner in context', *The Review of Politics*, 69, 1, 2007; J. Pocock, 'The reconstruction of discourse: Towards the historiography of political thought', *MLN*, 96, 5, 1981; J. Pocock, 'Quentin Skinner. The history of politics and the politics of history', *Common Knowledge*, 10, 3, 2004; M. Schabas, 'Breaking away: History of economics as history of science', *History of Political Economy*, 24, 1, 1992; Skinner, 'Meaning and understanding'; Wickberg, 'Intellectual history'.

[57] Examples include H. Hacohen, *Karl Popper - The formative years, 1902-1945*, Cambridge: Cambridge University Press, 2000; R. Monk, *Ludwig Wittgenstein: The Duty of Genius*, New York: Maxwell Macmillan International, 1990; E. Young-Bruehl, *Hannah Arendt: For Love of the World*, London: Yale University Press, 1982.

ideas of individuals and groups. This produces a form of collective biography, where the focus is on the group rather than the individual.[58]

The *sociology of scientific knowledge* argues that ideas are dependent on social factors.[59] A *social-contextual* view emphasises the effect of a scholar's 'worldview' or 'belief system', which is determined by social factors such as class, institutional status, and political orientation.[60] Pierre Bourdieu, as well as the 'strong programme' of Barry Barnes, David Bloor, and others have contributed to this approach.[61] A *social-deterministic* view, on the other hand, focusses on social relationships rather than social context. In this case, intellectual traditions emerge as a result of an affinity that scholars and their ideas have with others. Intellectual history is thus inherently related to the structure of social relationships.[62] Interactions through formal institutions, conferences, journals, and informal collaboration are key avenues through which influence can occur.[63]

This thesis primarily adopts a *social-deterministic* view, examining the interdependence of ideas and social interactions. It is also informed by the institutional approach, with social ties argued to be due to engagement with universities and professional organisations. Australian economic history is analysed as a community, with institutions, social interactions and ideas affecting the development of the group.

---

[58] M. Jay, *The dialectical imagination: A history of the Frankfurt School and the Institute of Social Research, 1923-1950*, London: Heinemann, 1973; L. Menand, *The metaphysical club: A story of ideas in America*, New York: Farrar, Straus and Giroux, 2001.
[59] A. Pickering, 'From science as knowledge to science as practice', in Pickering, ed., *Science as practice and culture*, Chicago: University of Chicago Press, 1992, p.2. See also A. Coats, 'The sociology of economics and scientific knowledge, and the history of economic thought', in Samuels, Biddle and Davis, ed., *A companion to the history of economic thought*, Malden, MA: Blackwell, 2003; D. Hands, 'Conjectures and reputations: The sociology of scientific knowledge and the history of economic thought', *History of Political Economy*, 29, 4, 1997; D. Hands, 'The sociology of scientific knowledge', in Backhouse, ed., *New directions in economic methodology*, London: Routledge, 2012.
[60] K. Mannheim, *Structures of thinking*, London: Routledge and Kegan Paul, 1922.
[61] V. Beattie and E. Davie, 'Theoretical studies of the historical development of the accounting discipline: A review and evidence', *Accounting, Business & Financial History*, 16, 1, 2006; Coats, 'Sociology of economics'; Hands, 'Conjectures and reputations'.
[62] Crane, *Invisible colleges*; Kuhn, *Structure of scientific revolutions*; Mulkay, 'Scientific development'; Mulkay, et al., 'Problem areas'; Mullins, *Theory and theory groups*; Whitley, *Organisation of the sciences*; Hands and Mirowski, 'Harold Hotelling'; Mirowski, *More heat than light*; Weintraub and Mirowski, 'The pure and applied'.
[63] Crane, *Invisible colleges*; Mulkay, et al., 'Problem areas'; Mullins, *Theory and theory groups*; D. d. S. Price, *Little science, big science*, New York: Columbia University Press, 1963; D. d. S. Price, *Little Science, Big Science (and beyond)*, New York: Columbia University Press, 1986.

2.3.1. Communities in intellectual history

The central unit of analysis in intellectual history has generally been the lone pioneer scholar, with a discussion of the main factors that affected his or her approach to research. However, the turn towards sociological and contextual factors has meant that scholarly communities have gained much more attention. Communities in intellectual history have been framed as *research schools*, analysing the development of a community of scholars built around 'intellectual leaders'.[64] The school involves social cohesion, a focussed research program, financial support, and the colonisation of graduate programs and publication outlets.[65] The approach has since expanded to distinguish between *institutional* and *cognitive* schools, with an institutional school characterised by a common university and the regular interaction of key members. A cognitive school occurs when there is a distinct research agenda adopted between geographically dispersed members who, consequently, interact much less frequently.[66] The research school may be structured around hierarchal connections between teachers and students.[67] Alternatively, the school could be structured through horizontal connections between peers and rivals.[68] Research schools are the most recognisable and easily identified form of intellectual community.

The *collaborative circles* approach, on the other hand, studies the work of scientists if they are removed from formal institutions. Similar to the horizontal interactions from the research school approach, collaborative circles involve peers in the same discipline who, over time, develop into an interdependent group with a common vision. Members exchange support, ideas and criticism, with interactions not necessarily tied to the university or the research laboratory. The absence of formal institutions means that those in leadership roles may change over time, and social factors such as shared attitudes structure interactions.[69] Applications of this framework by Farrell and others have confirmed that collaborative circles form when scholars are removed from formal

---

[64] Attributed first to J. Morrell, 'The chemist breeders: The research schools of Liebig and Thomas Thomson', *Ambix*, 19, 1, 1972.
[65] G. Geison, 'Scientific change, emerging specialties, and research schools', *History of Science*, 19, 43, 1981.
[66] A. Rocke, 'Group research in German chemistry: Kolbe's Marburg and Leipzig Institutes', *Osiris*, 8, 1, 1993.
[67] Geison, 'Scientific change'; Morrell, 'The chemist breeders'; H. Zuckerman, 'Nobel laureates in science: Patterns of productivity, collaboration, and authorship', *American Sociological Review*, 32, 3, 1967.
[68] R. Collins, *The sociology of philosophies*, Harvard: Harvard University Press, 1998; Mullins, *Theory and theory groups*.
[69] M. Farrell, *Collaborative circles: Friendship dynamics and creative work*, Chicago: University of Chicago Press, 2001.

structures like universities.[70] This thesis contributes to the discussion of research schools by analysing the distinct organisation of scholars in Australian economic history. Most interactions were developed through prominent universities, and as such the field resembled an institutional research school.

While these studies of intellectual communities analyse the impact of social relationships, geographic space and institutional arrangements, there is currently very little integration of intellectual history with digital humanities. Digital humanities seeks to use computer techniques to understand humanistic disciplines and fields.[71] A key component of this methodology is SNA, which involves the collection, analysis, and visualisation of data that describe connections between entities.[72] There has been growing use of SNA to analyse historical phenomena,[73] including a number of projects that map relationships in intellectual communities.[74] However there are, as yet, very few attempts to interpret these intellectual networks or to relate changes in the social structure to changes in the intellectual character of the group.[75] SNA includes theoretical and methodological frameworks for understanding the effect of social relationships on ideas. Various social and institutional elements can be mapped with SNA, with the structure of the network and the relative position of individuals argued to affect communication, knowledge diffusion

---

[70] Farrell, *Collaborative circles*; C. Goodwin, 'The Bloomsbury group as creative community', *History of Political Economy*, 43, 1, 2011; N. McLaughlin, 'Collaborative circles and their discontents: Revisiting conflict and creativity in Frankfurt School critical theory', *Sociologica*, 2, 2, 2008; K. C. Oberlin and T. F. Gieryn, 'Place and culture-making: Geographic clumping in the emergence of artistic schools', *Poetics*, 2015; J. Scott and R. Bromley, *Envisioning sociology: Victor Branford, Patrick Geddes, and the quest for social reconstruction*, SUNY Press, 2013; Wright, 'A network analysis'.

[71] D. M. Berry, ed. *Understanding digital humanities*, Hampshire: Palgrave Macmillan, 2012.

[72] R. Hanneman and M. Riddle, *Introduction to social network methods*, Riverside CA: University of California, 2005; J. E. Terrell, 'Social network analysis and the practice of history', in Knappett, ed., *Network analysis in archaeology*, Oxford: Oxford University Press, 2013.

[73] For some examples, see M. Duijvendak and M. Peterzon, 'Relations, friends and relatives: Comparing elite-networks on structural properties in the Dutch provinces Groningen and North-Brabant, 1830-1910', in Boonstra, Collenteur and van Elderen, ed., *Structures and contingencies in computerized historical research*, Hilversum: Verloren, 1995; C. Fertig, 'Rural society and social networks in nineteenth-century Westphalia: The role of Godparenting in social mobility', *Journal of Interdisciplinary History*, 39, 1, 2009; G. Fertig, ed. *Social networks, political institutions, and rural societies*, Turnhout: Brepols, 2015; R. V. Gould, 'Multiple networks and mobilization in the Paris Commune 1871', *American Sociological Review*, 56, 1991; R. V. Gould, 'Trade Cohesion, Class Unity, and Urban Insurrection: Artisanal Activism in the Paris Commune', *American Journal of Sociology*, 98, 4, 1993; S. K. Han, 'The other ride of Paul Revere: The brockerage role in the making of the American Revolution', *Mobilization*, 14, 2009; E. Moretti, 'Social networks and migrations: Italy 1876-1932', *International Migration Review*, 33 (3), 1999.

[74] See Harvard University, 'Economists in Cambridge'; Krischel and Fangerau, 'Historical network analysis'; Shakeosphere, 'Shakeosphere'; Six Degrees of Francis Bacon, 'Six degrees of Francis Bacon'.

[75] Another project by this author is an example of the use of this methodology to analyse intellectual communities. See Wright, 'A network analysis'.

and the intellectual character of the community.[76] This thesis contributes to the intellectual history literature by extending the social-deterministic perspective to incorporate the visualisation and analysis of social network maps.

While the range of contextual and sociological approaches in intellectual history do provide crucial perspectives for the way ideas are constructed, they have been criticised for social-reductionism. It has been argued that sociological approaches do not take ideas themselves seriously because they are seen as a mask for something much more 'real'.[77] However, the study of intellectual history resists the separation of internal and external forces in the development of ideas, with many discussions of scientific change incorporating both cognitive and social elements.[78] Many of the models of scientific change, outlined in chapter 3, are based on both social and cognitive aspects.[79] This approach has informed the methodology of this thesis.

2.4. Conclusions

The analysis that follows contributes to the historiography literature on the economic history field by considering the impact of institutional and contextual factors on the development of ideas. It also adds to the conventional narrative about Australia's economic history community by going beyond published works to consider the impact of geographic proximity, institutional factors and social interactions in the development of intellectual trends. The analysis also contributes to the study of intellectual history by extending the social-deterministic approach to incorporate the use of social network analysis. This visualises social and professional relationships between scholars, and offers explanations for how these interactions may have affected the intellectual character of the group. By highlighting the interdependence of space, time, context, institutions, and ideas, this thesis accounts for the complex ways in which intellectual traditions have formed in Australian economic history.

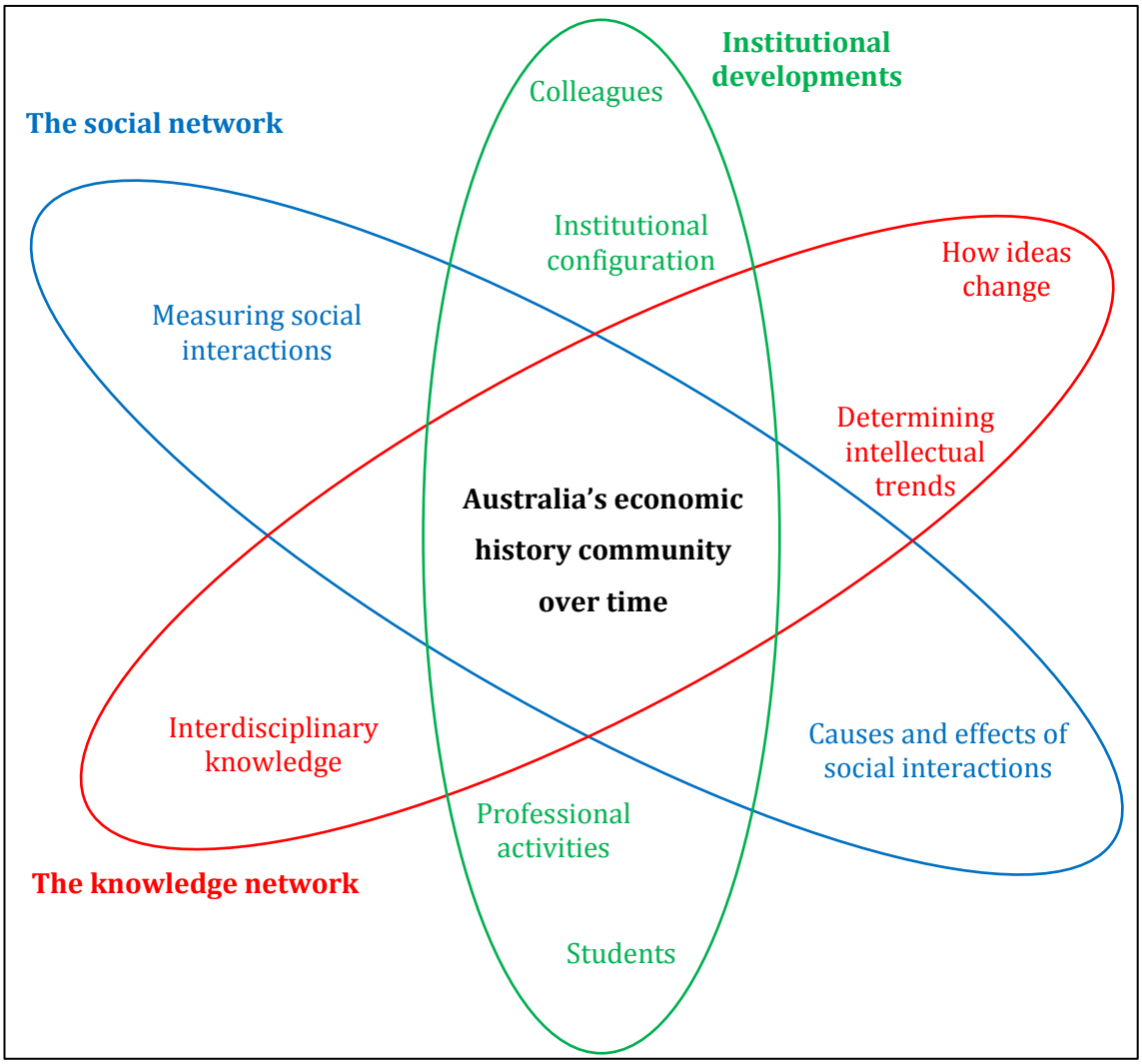
---

[76] See chapters 3 and 4 for a discussion of these conceptual and methodological frameworks.
[77] H. Dreyfus and P. Rabinow, 'Can there be a science of existential structure and social meaning?', in Shusterman, ed., *Bourdieu: A critical reader*, Malden, Mass: Blackwell, 1999.
[78] See T. Becher, 'Disciplinary discourse', *Studies in Higher Education*, 12, 3, 1987; T. Shinn, 'Scientific disciplines and organisational specificity', in Elias, Martins and Whitley, ed., *Scientific establishments and hierarchies*, Dordrecht: Riedel, 1982 for some applied examples.
[79] R. Collins, *Conflict sociology: Toward an explanatory science*, Chicago: University of Chicago Press, 1975; S. Fuchs, 'A sociological theory of scientific change', *Social Forces*, 71, 4, 1993; Whitley, *Organisation of the sciences*; Crane, *Invisible colleges*; Kuhn, *Structure of scientific revolutions*; Mulkay, et al., 'Problem areas'; Mullins, *Theory and theory groups*; Price, *Little science*.

3. Conceptual framework

This thesis examines the development of an intellectual community over time, focussing on the interplay of social interactions, institutional developments, and ideas in the field. This chapter outlines the frameworks that underpin the methodology and interpretation of results. A representation of the conceptual framework is presented in Figure 3.1.

Figure 3.1: Conceptual framework flowchart



Understanding the social network draws on theories that explain the motivations for developing social interactions, the effect of these ties on ideas, and the way in which SNA offers a visual representation of these connections. The discussion of the knowledge network rests on explanations for the convergence of ideas between scholars and groups, the nature of interdisciplinary knowledge, and the way in which intellectual trends can be determined. Scholars in this community operated largely within Australia's higher education sector, so the social and knowledge networks also intersected with institutional developments, including the configuration of economic history groups, the characteristics

of colleagues and students, and the nature of professional activities. Having established the forces under which intellectual communities develop, this chapter then describes the various life-cycle stages through which academic groups progress. These conceptual frameworks highlight the interdependence of social interactions, ideas, and institutional developments in Australia's economic history community.

3.1. Disciplinary and interdisciplinary knowledge

Academic communities may take on a number of different forms based on the nature of knowledge produced, and the social and professional organisation of scholars. A *discipline* is "a specialised field of knowledge" that represents "historical, evolutionary aggregates of shared scholarly interest".[80] Kuhn has referred to this as the 'disciplinary matrix', including the symbolic generalisations, models, and exemplary work that define the discipline's questions and solutions.[81] A discipline advances knowledge through shared understanding of best practice, key concepts, theoretical backgrounds and technical skills. The community is characterised by strong relationships, with collaboration and co-ordinated action between scholars facilitated by trust, norms, shared values and accountability.[82] Disciplines generally have common ground and a shared identity, with the group continually re-affirming its purpose, contribution to the academy, and methodological frameworks.[83]

However, these consistent practices, belief systems and institutional structures, while binding the group together, also route communication inward. This makes it difficult and risky to reach beyond disciplinary boundaries.[84] Specialised journals, citation patterns,

---

[80] D. E. Chubin, A. L. R. Porter, Frederick A. and T. Connolly, ed. *Interdisciplinary analysis and research: theory and practice of problem-focused research and development*, Mt Airy, MD: Lomond, 1986, p.4.
[81] Kuhn, *Structure of scientific revolutions*.
[82] See below. R. S. Burt, 'The network structure of social capital', *Research in Organisational Behaviour*, 22, 1, 2000; J. Coleman, 'Social capital in the creation of human capital', *American Journal of Sociology*, 94, Supplement, 1988; J. Nahapiet and S. Ghoshal, 'Social capital, intellectual capital, and the organisational advantage', *The Academy of Management Review*, 23, 2, 1998; J. Nieves and J. Osorio, 'The role of social networks in knowledge creation', *Knowledge Management Research and Practice*, 11, 1, 2013; Whitley, *Organisation of the sciences*.
[83] C. Hu and P. Racherla, 'Visual representation of knowledge networks: A social network analysis of hospitality research domain', *International Journal of Hospitality Management*, 27, 1, 2008; A. Bonaccorsi, 'New forms of complementarity in science', *Minerva*, 48, 4, 2010; Whitley, *Organisation of the sciences*.
[84] R. Frodeman and C. Mitcham, 'New directions in interdisciplinarity: Broad, deep, and critical', *Bulletin of Science, Technology and Society*, 27, 6, 2007; J. Jacobs and S. Frickel, 'Interdisciplinarity: A critical assessment', *Annual Review of Sociology*, 35, 1, 2009; J. Klein, *Crossing boundaries:*

conferences and academic departments are the discipline's 'mechanisms of control' which create insularity and silo behaviour. This may exclude potential innovators and discount the contributions of other domains of knowledge.[85] Members of the 'tribe' also generally have access to similar information and contacts, which can lead to informational inertia.[86]

Disciplinary research exists at one end of a spectrum of integration in knowledge production. It is also referred to as *intradisciplinary* research, involving scholars working together within their own disciplinary matrix. Next is *cross-disciplinary* research, which involves the examination of one discipline's issues from the perspective of a different discipline. *Multidisciplinary* research involves scholars from several disciplines working together on a common problem. *Interdisciplinary* research (IDR) integrates the contributions of two or more disciplines into a harmonious relationship, relating the specific contributions of one discipline to the general interest of other groups. The highest level of integration is *transdisciplinary* research, which seeks unity in intellectual frameworks, and the application of knowledge beyond disciplinary boundaries.[87]

IDR generally lacks the traditions and infrastructure of disciplines, but is also free from the barriers that constrain the flow of ideas between different domains of knowledge. IDR generally has ambiguous theoretical frameworks and methodologies, which can be challenging to manoeuvre, but also are the source of new, innovative knowledge. Because of its openness and relevance to a number of disciplinary domains, IDR is seen as the source of scientific breakthroughs, and as necessary to address the complex problems of the modern world.[88] Traditionally, disciplinary and interdisciplinary work have been seen

---

Knowledge, disciplinarities, and interdisciplinarities, Charlottsville: The University of Virginia Press, 1996.

[85] T. Becher and P. Trowler, *Academic tribes and territories: Intellectual enquiry and the culture of disciplines*, Buckingham: The Society for Research into Higher Education, Open University Press, [1989] 2001; Y. Ding, 'Scientific collaboration and endorsement: Network analysis of coauthorship and citation networks', *Journal of Informetrics*, 5, 1, 2011.

[86] R. Katz and T. Allen, 'Investigating the Not Invented Here (NIH) syndrome', *R&D Management*, 12, 1, 1982; C. Millar and C. Choi, 'Networks, social norms and knowledge sub-networks', *Journal of Business Ethics*, 90, 1, 2009.

[87] Klein, *Crossing boundaries*; J. Kockelmans, *Interdisciplinarity and higher education*, University Park: Pennsylvania State University Press, 1979; M. Stember, 'Advancing the social sciences: Through the interdisciplinary enterprise', *The Social Science Journal*, 28, 1, 1991; T. J. Paxton, 'Modes of interaction between disciplines', *The Journal of Education*, 45, 2, 1996; National Academies, *Facilitating interdisciplinary research*, Washington DC: The National Academies Press, 2005.

[88] Bonaccorsi, 'Complementarity in science'; Jacobs and Frickel, 'Interdisciplinarity'; C. Lyall and L. Meagher, 'A masterclass in interdisciplinarity: Research into practice in training the next generation of interdisciplinary researchers', *Futures*, 44, 6, 2012; Kuhn, *Structure of scientific revolutions*; S. Page, *The difference: How the power of diversity creates better groups, firms, schools, and societies*, Princeton: Princeton University Press, 2007; I. Rafols, L. Leydesdorff, A. O'Hare, P.

as separate, often competing, methods of knowledge production. IDR has been dismissed as the historical residue of disciplines evolving over time, or as largely operating in a different system.[89] There is increasing recognition, however, that these two forms of knowledge are complementary. There is a division of labour between groups, with disciplines providing the coherent intellectual foundations – specialised vocabulary, verified theory, and consistent methodologies – for broad interdisciplinary projects.[90] IDR is thus "deeply informed by disciplinary expertise", and disciplines are dependent on IDR to bridge the gaps between insular tribes.[91]

This thesis examines changes in knowledge produced in Australia's economic history community. The development of the field was partially dependent to the inherent nature of research in economic history, as well as the particular social, institutional, and intellectual conditions of the group. These issues, and the complementarity between disciplinary growth and interdisciplinary knowledge, is of central importance in the empirical analysis in parts 2 and 3 of this thesis.

3.2. The life-cycle progression of academic communities

Based on the type of knowledge produced and the social organisation of scholars, academic communities develop through a number of stages. Thomas Kuhn first formulated the life-cycle progression of disciplines.[92] He proposed a cycle-mechanism, in which scholars continually establish, operate in, and revolutionise a particular 'disciplinary matrix'. Lakatos' theory of research programmes argues that academic communities – built on a 'hard-core' of theoretical assumptions – can either progress through helpful auxiliary hypotheses, or can degenerate by engaging in *ad hoc* updates of the core

---

Nightingale and A. Stirling, 'How journal rankings can suppress interdisciplinary research: A comparison between innovation studies and business and management', *Research Policy*, 41, 7, 2012.

[89] A. Abbott, *Chaos of disciplines*, Chicago: University of Chicago Press, 2001; S. Turner, 'What are disciplines? And how is interdisciplinarity different?', in Weingart and Stehr, ed., *Practicing interdisciplinarity*, Toronto: University of Toronto Press, 2000.

[90] J. D. Aram, 'Concepts of interdisciplinarity: Configuration of knowledge and action', *Human Relations*, 57, 4, 2004; Bonaccorsi, 'Complementarity in science'; Burt, 'Social capital'; T. Pfister, 'Coproducing European integration studies: Infrastructures and epistemic movements in an interdisciplinary field', *Minerva*, 53, 3, 2015; Frodeman and Mitcham, 'Interdisciplinarity'.

[91] K. Fuchsman, 'Rethinking integration in interdisciplinary studies', *Issues in Integrative Studies*, 1, 27, 2009, p.72-3; Burt, 'Social capital'; K. Rost, 'The strength of strong ties in the creation of innovation', *Research Policy*, 40, 4, 2011.

[92] Kuhn, *Structure of scientific revolutions*.

premise.[93] Models proposed by Mulkay et al., and Crane outline an S-shaped curve for disciplines to progress through, with an exploratory, high-output and stagnation phase.[94] Mullins, similarly, has outlined four stages, with the introduction of a new innovation, the development of social connections, the formation of paradigms, and finally either the dispersal of resources or the institutionalisation of the community.[95] Task uncertainty/mutual dependence models argue that different *types* of science result in different stage progressions over the long run. The extent to which research advancements are predictable and stable (task uncertainty), and the social integration of scholars (mutual dependence) lead to different outcomes for each academic group.[96]

This thesis draws on Frickel and Gross' 'general theory' of scientific/intellectual movements (SIM), which in turn incorporates elements from these earlier models of disciplinary development.[97] Frickel and Gross have argued that intellectual movements emerge to challenge the pervading way of thinking, with prominent scholars harbouring complaints against the established paradigm and taking the initiative to formulate a new, innovative research program. Their efforts are supported by structural conditions, including the resources available in the higher education system. University departments, publications, appointments, institutional networks, and scholarly organisations are granted through a favourable institutional environment. From there, sustaining an intellectual movement requires the recruitment of new members, either through graduate training, or conferences where scholars can be convinced of the validity of the new paradigm.

Incorporating these theories of disciplinary development, the empirical analysis suggests that the Australian economic history community resembled an intellectual movement in the 1950s and 1960s. Prominent scholars held complaints against the prevailing paradigms of economic history, using this as the basis for a redefinition of the field. General higher education expansion supported these efforts, allowing economic historians to increase the number of graduate students, appointments, and departments of economic

---

[93] I. Lakatos, J. Worrall and G. Currie, *The methodology of scientific research programmes: Volume 1: Philosophical papers*, Cambridge: Cambridge University Press, 1980.
[94] Mulkay, et al., 'Problem areas'; Crane, *Invisible colleges*.
[95] Mullins, *Theory and theory groups*.
[96] Fuchs, 'Scientific change', which is a synthesis of the seminal models of Collins, *Conflict sociology*; Price, *Little Science (and beyond)*; Whitley, *Organisation of the sciences*.
[97] See S. Frickel and N. Gross, 'A general theory of scientific/intellectual movements', *Annual Review of Sociology*, 70, 1, 2005. Other models included here are Collins, *Conflict sociology*; Fuchs, 'Scientific change'; Kuhn, *Structure of scientific revolutions*; Lakatos, et al., *Scientific research programmes*; Mulkay, et al., 'Problem areas'; Mullins, *Theory and theory groups*; Whitley, *Organisation of the sciences*.

history. These intellectual and institutional developments combined with the journal, society and conference to provide a platform through which others could be convinced of the validity of this new approach. The development of Australian economic history in the 1950s and 1960s was thus due to intellectual leaders, social organisation, and favourable structural conditions.

However, some of the dynamics of this case study were different to those outlined by Frickel and Gross' model. There was intellectual plurality in the field from the 1970s, with the development of several distinctive traditions, each with intellectual leaders and recruitment of new members. The 'tyranny of distance' between different centres of economic history, and a lack of strong national co-ordination contributed to very high levels of social cohesion in each local environment. Intellectual fragmentation was the result, with a series of autonomous schools co-existing throughout the 1970s and 1980s.

3.3. The social network

The structure of social interactions affected the long-term development of Australia's economic history community. The analysis of the social network is based on theoretical explanations for the development of ties, and the effect of these ties on the production of knowledge in a group. Based on these assumptions, some interactions have been visualised using SNA. Social networks indicate the probability of interactions between scholars based on geographic proximity and collaboration. These are a key vehicle through which communication and the diffusion of ideas may occur.

3.3.1. The development of social networks

Social networks are created through interpersonal interactions. These may be motivated by intrinsic factors, with some arguing that individuals form connections based on *self-interest*, meaning they aim to maximise their personal preferences and invest in their social capital.[98] These decisions are constrained by interdependence with others in the community, and there is a delicate balance between the constraints and resources of each interaction.[99] The *exchange* approach argues that individuals are motivated to minimise

[98] R. Burt, 'Structural holes and good ideas', *American Journal of Sociology*, 110, 2, 2004; Burt, 'Social capital'; Coleman, 'Social capital'; N. Katz, D. Lazer, H. Arrow and N. Contractor, 'Network theory and small groups', *Small group research*, 35, 3, 2004; Millar and Choi, 'Networks'.
[99] Katz, et al., 'Small groups'; Millar and Choi, 'Networks'.

their dependence on others, and maximise the dependence of others on them for resources or contacts.[100] Homans, the forebear of this model, and later Blau, have argued that people establish connections with those with whom they can exchange resources. The 'value' from each interaction then structures the long-term relationships in the community.[101] The valuation and exchange of knowledge has been argued to drive the creation of intellectual communities.[102] The *mutual interest* model argues that individuals form groups to maximise their collective abilities and the benefits of co-ordinated action.[103] Individuals, in this model, tend to interact more with those that have similar interests and are willing to share ideas and resources. Groups operate similar to a 'club good', in which participants must make some sort of contribution in order to share in the benefits of the network. Collective action, particularly through teamwork and collaboration, has been emphasised for the creation of new knowledge in intellectual communities.[104]

Networks may also form based on cognitive factors. *Transactive memory* argues that individuals, with their own set of skills and knowledge, develop connections with those who have complementary skills and knowledge. This facilitates the flow of ideas, and reduces the need for each member to possess knowledge that is available elsewhere in the group.[105] *Balance theory*, conversely argues that 'cognitive balance' is required for

---

[100] P. Blau, *Exchange and power in social life*, New York: Wiley, 1964; R. Cropanzano and M. Mitchell, 'Social exchange theory: An interdisciplinary review', *Journal of Management*, 31, 6, 2005; R. Emerson, 'Social exchange theory', *Annual Review of Sociology*, 2, 1, 1976; A. Gouldner, 'The norm of reciprocity: A preliminary statement', *American Sociological Review*, 25, 1, 1960; G. Homans, *The human group*, New York: Harcourt, Brace & World, 1950; J. Thibault and H. Kelley, *The social psychology of groups*, New York: John Wiley, 1959.

[101] Blau, *Exchange and power*; Homans, *Human group*.

[102] J. Kenway, E. Bullen and S. Robb, 'The knowledge economy, the techno-preneur and the problematic future of the university', *Policy Futures in Education*, 2, 2, 2004; Nahapiet and Ghoshal, 'Social capital'.

[103] M. Granovetter, 'Threshold models of collective behaviour', *American Journal of Sociology*, 83, 6, 1978; R. Hardin, *Collective action*, Baltimore: John Hopkins University Press, 1982; M. J. Olson, *The logic of collective action*, Cambridge, MA: Harvard University Press, 1965; P. Samuelson, 'The pure theory of public expenditure', *Review of Economics and Statistics*, 36, 1, 1954.

[104] J. Katz and B. Martin, 'What is research collaboration', *Research Policy*, 26, 1, 1997; Katz, et al., 'Small groups'; Millar and Choi, 'Networks'; Nahapiet and Ghoshal, 'Social capital'; L. Zucker, M. Darby, M. Brewer and Y. Peng, 'Collaboration structures and information dilemmas in biotechnology: Organisation boundaries as trust production', in Kramer and Tyler, ed., *Trust in organisations: Frontiers of theory and research*, Thousand Oaks, CA: Sage, 1996.

[105] A. Hollingshead, 'Retrieval processes in transactive memory systems', *Journal of personality and social psychology*, 74, 1, 1998; A. Hollingshead, J. Fulk and P. Monge, 'Fostering intranet knowledge-sharing: An integration of transactive memory and public goods approaches', in Hinds and Kiesler, ed., *Distributed work*, MA: MIT Press, 2002; Katz, et al., 'Small groups'; D. Wegner, 'Transactive memory: A contemporary analysis of the group mind', in Mullen and Goethals, ed., *Theories of group behaviour*, New York: Springer-Verlag, 1987.

interaction between actors.[106] If two individuals do not consistently evaluate a third person, they experience a state of discomfort and strive to either re-evaluate their impression of the third person, or their existing friendship. Individuals are thus more likely to interact with those whose friends are also friends with one another.[107] *Homophily* argues that individuals are likely to form networks with those that have similar ideas and personal characteristics.[108] Similar values, age, gender, occupation, or academic discipline are thought to "ease communication, increase predictability of behaviour and foster trust and reciprocity".[109] Homophily has been applied to intellectual communities, with some arguing that 'sameness' between scholars creates networks where other motivations for interaction (such as geographic proximity) fail.[110]

These internal motivations argue that elements of the knowledge network structure social interactions. Scholars may choose to connect with others based on similar backgrounds, the value of their intellectual contribution, complementary skills, or the compatibility of their approach.

Social networks may also form based on macro-factors such as geographic space, common institutions, or joint activities. The social networks in this thesis are informed by Feld's *foci theory*, which argues that contextual entities are an important determinant of networks.[111] Figure 3.2 presents Feld's formulation of the process of network formation through contextual factors. Two individuals who share a focus (such as a common workplace or neighbourhood) are more likely to share joint activities than two individuals who do not share that focus. Joint activities lead to interactions between individuals, and if there is a positive outcome from these interactions, individuals will try to develop new foci

---

[106] D. Bloor, *Knowledge and social imagery*, Chicago: University of Chicago Press, 1976; F. Harary, R. Norman and D. Cartwright, *Structural models*, New York: Wiley, 1965; F. Heider, 'Attitiudes and cognitive organisation', *Journal of Psychology*, 21, 1, 1946; F. Heider, *The psychology of interpersonal relations*, New York: Wiley, 1958; Homans, *Human group*; T. Newcomb, *The acquaintance process*, New York: Holt, Rinehart & Winston, 1961.

[107] See D. Krackhardt and M. Kilduff, 'Friendship patterns and culture: The control of organizational diversity', *American Anthropologist*, 92, 1, 1990 for an applied example.

[108] D. Brass, 'A social network perspective on human resources management', *Research in Personnel and Human Resources Management*, 13, 1, 1995; P. Lazarsfeld and R. Merton, 'Friendship as a social process: a substantive and methodological analysis', in Berger, ed., *Freedom and control in modern society*, New York: Van Nostrand, 1954; M. McPherson, L. Smith-Lovin and J. Cook, 'Birds of a feather: Homophily in social networks', *Annual Review of Sociology*, 27, 1, 2001.

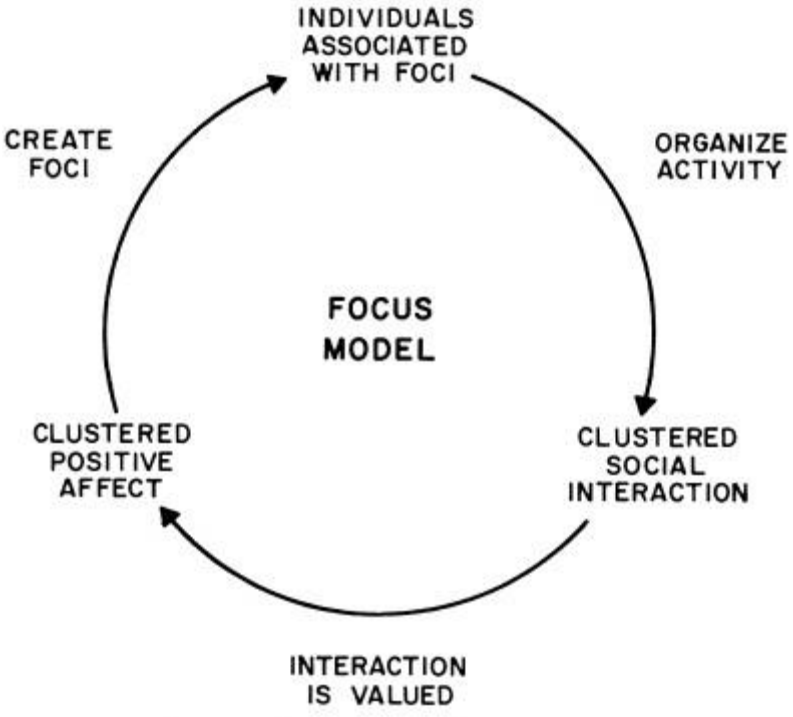
[109] Brass, 'Human resources management', p.51.

[110] S. Aral, L. Muchnik and A. Sundararajan, 'Distinguishing influence-based contagion from homphily-driven diffusion in social networks', *Proceedings of the National Academy of Sciences of the United States of America*, 106, 51, 2009; C. Rawlings, D. McFarland, L. Dahlander and D. Wang, 'Streams of thought: Knowledge flows and intellectual cohesion in a multidisciplinary era', *Social Forces*, 93, 4, 2015.

[111] Feld, 'Social ties'.

to organise joint activities.[112] This emphasises the effect of context, though ongoing interactions are also dependent on the internal sentiments that individuals derive from each interaction. This approach has been used to explain intellectual networks, with institutions, conferences, journals and professional societies argued to increase interaction and the diffusion of knowledge between scholars.[113]

Figure 3.2: Dynamic model of foci and group development



Source: Feld, 'Social ties', p.1026.

In Feld's model, the characteristics of each focus affects the type of network that develops. If the focus has greater *constraint* – meaning greater restrictions on time, effort and emotion – it is more likely that two individuals will develop a relationship. For example, a family unit is highly constrained because individuals are forced to interact heavily and often. This means that all individuals associated with the family will have a relationship. A city neighbourhood, on the other hand, is much less constrained, meaning only a slightly

[112] Feld, 'Social ties'.
[113] R. Boschma, 'Proximity and innovation: a critical assessment', *Regional Studies*, 39, 1, 2005; Crane, *Invisible colleges*; A. Jaffe, M. Trajtenberg and R. Henderson, 'Geographic localization of knowledge spillovers as evidenced by patient citations', *The Quarterly Journal of Economics*, 108, 3, 1993; J. Katz, 'Geographical proximity and scientific collaboration', *Scientometrics*, 31, 1, 1994; Kuhn, *Structure of scientific revolutions*; Mullins, *Theory and theory groups*; R. Ponds, F. van Oort and K. Frenken, 'The geographical and institutional proximity of research collaboration', *Papers in Regional Science*, 86, 3, 2007; Price, *Little science*; Wright, 'A network analysis'.

higher proportion of individuals will be tied than otherwise. The *size* of the foci also has an effect, with larger foci generally less constrained as it is more difficult to arrange for many people to engage in frequent joint activities. Thus, as the size of the foci increases, the probability of a strong relationship between two individuals decreases. Easier co-ordination means that smaller foci are generally more highly constrained, with a greater chance of strong ties.[114]

Feld's foci model provides a dynamic specification of the development of social networks. Ties are maintained over time, provided the foci remain consistent. Ties may also be reinforced over time, with positive outcomes from an interaction encouraging individuals to find new foci around which to organise activities. By a similar token, negative outcomes from an interaction may mean that individuals remove themselves from the particular foci, contributing to the dissipation of the tie over time.

Social networks may also be affected over time through technological change. Social ties are generated and maintained through interpersonal communication, and so improvements in communication and travel technology may affect the type and intensity of ties in a community.[115] Technological progress tends to ease communication with distant actors, with individuals able to form connections on the basis of common interests rather than simply convenience.[116] 'Revolutionary' changes in technology, such as the invention of the phone, the internet, or widespread air travel, has increased the geographic reach of social networks over time.[117] However, contemporary analysis finds that there is still a substantial positive effect for geographic proximity between scholars.[118] Technological improvements may improve local social ties as well, with expanded communication options found to contribute to deepening contact between close friends.[119]

---

[114] Feld, 'Social ties'.
[115] G. Boyce, 'Communicating infrastructures', in Boyce, Macintyre and Ville, ed., *How organisations connect*, Melbourne: Melbourne University Press, 2006
[116] R. Kraut, M. Patterson, V. Lundmark, S. Kiesler, T. Mukophadhyay and W. Scherlis, 'Internet paradox: A social technology that reduces social involvement and psychological well-being?', *American psychologist*, 53, 9, 1998; H. Rheingold, *The virtual community: Homesteading on the electronic frontier*, Cambridge: MIT press, 2000.
[117] Rheingold, *The virtual community*; I. Shklovski, S. Kiesler and R. Kraut, 'The internet and social interaction', *Computers, phones, and the Internet*, 2006.
[118] F. Van Oort, *Urban growth and innovation: Spatially bounded externalities in the Netherlands*, Ashgate: Aldershot, 2004; Ponds, et al., 'Research collaboration'; C. Hussler and P. Ronde, 'The impact of cognitive communities on the diffusion of academic knowledge: Evidence from the networks of inventors of a French university', *Research Policy*, 36, 2, 2007.
[119] C. Licoppe and Z. Smoreda, 'Are social networks technologically embedded?: How networks are changing today with changes in communication technology', *Social Networks*, 27, 4, 2005; C. Haythornthwaite, 'Social networks and Internet connectivity effects', *Information, Communication &*

Reconciling these trends and Feld's model of network formation, technological change may lead to the maintenance of pre-existing relationships. Improved technology may mean that two scholars can maintain a social tie in between periods of face-to-face contact.[120] For this community, the time period of interest did not contain any revolutionary changes in communication or travel technology.[121] There were incremental improvements, with cheaper phone calls, more accessible overseas travel, and improved transport infrastructure between the main cities. These factors may have slightly improved the ability of scholars to maintain geographically disparate links over time.

Social ties may thus form through a combination of internal cognitive motivations, or external contextual factors. The knowledge and social networks for the Australian economic history community were intertwined, with both similar ideas and joint activities prompting collaboration between scholars.

3.3.1.1 Strong and weak ties

Social interactions are generally formed as the result of activities between scholars associated with a common focus. The constraint of that focus determines the type of interaction, with highly constrained foci producing dense networks with a higher proportion of strong ties, and loosely constrained foci producing less-connected networks with weaker ties. The nature of ties in a network then affects the ease with which individuals communicate and the type of knowledge that is produced.

Strong ties generally facilitate trust, norms, accountability and common values, improving co-ordinated action and increasing social capital. For intellectual networks, social capital exists through the ability of individuals to have access to the knowledge through interactions with others. Social capital means that those with strong ties are more likely to exchange knowledge, and are more likely to seek out and offer help to others in the network.[122] Strong ties also mean that members of the group are more aware of the

---

Society, 8, 2, 2005; C. L. Coyle and H. Vaughn, 'Social networking: Communication revolution or evolution?', *Bell Labs Technical Journal*, 13, 2, 2008; Shklovski, et al., 'internet and social interaction'.

[120] Kraut, et al., 'Internet paradox'; Coyle and Vaughn, 'Social networking'

[121] Except for perhaps the widespread use of the fax machine.

[122] R. Burt, *Structural holes*, Cambridge, MA: Harvard University Press, 1992; Burt, 'Social capital'; Coleman, 'Social capital'; J. Coleman, *Foundations of social theory*, Cambridge: Harvard University Press, 1990; N. Friedkin, 'A test of structural features of Granovetter's strength of weak ties theory', *Social Networks*, 2, 1, 1980; Hu and Racherla, 'Knowledge networks'; A. McWilliams, A. Lockett, J. Katz and D. Van Fleet, 'Who is talking to whom? The network of intellectual influence in management research', *Journal of Applied Management and Entrepreneurship*, 14, 2, 2009; Millar and Choi, 'Networks'; Nahapiet and Ghoshal, 'Social capital'; Nieves and Osorio, 'Role of social

'relationship-specific heuristics' that may affect knowledge diffusion.[123] There is often a compatibility in language, theoretical background and methodology, meaning information is communicated more effectively by the source and understood more easily by the recipient.[124] Strong ties are particularly beneficial for diffusing the tacit aspects of knowledge, and for recognising the value of new knowledge.[125] However, a dense social structure may lead to 'mechanisms of control' that route communication inwards and exclude potentially innovative non-members.[126] This can lead to informational inertia, as members of the community have access to similar contacts, information and ideas.[127]

Weak ties, while associated with lower trust and fewer common values, are argued to increase the diversity of knowledge.[128] Weak ties mean there is a lower chance that an individual's connections are also acquainted. This lower *redundancy* of ties means that weak ties lead to contacts who have diverse backgrounds and distinct ideas. Weak ties are seen as the source of 'bridges' between different domains of knowledge, as fewer redundant ties means that it is more likely that a particular individual is the only path between two clusters.[129] Innovative knowledge and interdisciplinary research is argued to emerge from the synthesis of ideas across these bridges.[130] Weak ties can thus contribute to the diversity and overall knowledge output in intellectual communities.

As with the dichotomy between disciplinary and interdisciplinary knowledge, these network structures can be considered complementary rather than mutually exclusive. The

---

networks'; K. Siler, 'Citation choice and innovation in science studies', *Scientometrics*, 95, 1, 2013; O. Sorenson, J. Rivkin and L. Fleming, 'Complexity, networks and knowledge flow', *Research Policy*, 35, 1, 2006; Whitley, *Organisation of the sciences*.

[123] Coleman, 'Social capital'; Nieves and Osorio, 'Role of social networks'; B. Uzzi, 'Social structure and competition in interfirm networks: The paradox of embeddedness', *Administrative Science Quarterly*, 42, 1, 1997.

[124] Coleman, 'Social capital'; R. Reagans and B. McEvily, 'Network structure and knowledge transfer: The effects of cohesion and range', *Administrative Science Quarterly*, 48 2, 2003; Sorenson, et al., 'Complexity'.

[125] Burt, 'Social capital'; Rost, 'Strength of strong ties'; Sorenson, et al., 'Complexity'.

[126] Coleman, *Social theory*; Whitley, *Organisation of the sciences*; Frodeman and Mitcham, 'Interdisciplinarity'; Jacobs and Frickel, 'Interdisciplinarity'; J. Klein, *Interdisciplinarity: History theory, and practice*, Detroit: Wayne State University, 1990; Klein, *Crossing boundaries*.

[127] Katz and Allen, 'NIH syndrome'; M. Granovetter, 'The strength of weak ties', *American Journal of Sociology*, 78, 6, 1973; Millar and Choi, 'Networks'.

[128] Granovetter's work in this area is seminal, Granovetter, 'Strength of weak ties'. See also Burt, 'Structural holes'; Harary, et al., *Structural models*; J. Podolny and J. Baron, 'Resources and relationships: Social networks and mobility in the workplace', *American Sociological Review*, 62, 5, 1997; C. Wang, S. Rodan, M. Fruin and X. Xu, 'Knowledge networks, collaboration networks and exploratory innovation', *Academy of Management Journal*, 57, 2, 2014.

[129] Granovetter, 'Strength of weak ties'.

[130] Burt, *Structural holes*; Burt, 'Structural holes'; Granovetter, 'Strength of weak ties'; Reagans and McEvily, 'Network structure'.

strong ties paradigm emphasises the *relational* interpretation of social capital, highlighting solidarity and the ease of knowledge diffusion between scholars. The weak ties model emphasises the *structural* interpretation of social capital, advocating the benefits of diverse knowledge in an intellectual community.[131] These two types of ties can co-exist happily in a network, with different types of knowledge requiring different connections.[132] Complex knowledge with a large tacit component is best diffused through strong ties. Tacit knowledge is not easily codified, and so requires strong interpersonal connections to diffuse effectively. On the other hand, simple knowledge diffuses equally to those with strong or weak connections. An unaided search of published material adequately substitutes for any gaps made by an imperfect knowledge transfer.[133]

In consideration of this, some have recommended intellectual networks in which tightly-knit clusters are complemented by areas of sparse connections. Small-world research, first articulated by Stanley Milgram, advocates for teams with strong ties and a dense network structure in the local group, but with a large number of weak bridging ties to other clusters.[134] The generation of new knowledge first requires a weak network structure, as the presence of structural holes gives the network access to ideas from different areas. However, strong ties are crucial to recognising the value of these innovations, as they allow ideas to be tested and refined by members of the group. Weak networks thus provide the 'bridges' over which new innovations travel, with final decision-making on the usefulness and value of these innovations made through the credibility strategies of tight-knit clusters.[135] The social networks visualised in this thesis have various constraints, with some scholars involved in very large, loosely connected foci, and some in smaller and more densely-connected groups. The ties between scholars, and the knowledge produced in each group, reflected the size and constraint of these foci.

---

[131] Rost, 'Strength of strong ties'.
[132] Burt, 'Social capital'; M. Hansen, 'The search-transfer problem: The role of weak ties in sharing knowledge across organisational subunits', *Administrative Science Quarterly*, 44, 1, 1999; A. Montanari and A. Saberi, 'The spread of innovations in social networks', *Proceedings of the National Academy of Sciences of the United States of America*, 107, 47, 2010; Nieves and Osorio, 'Role of social networks'; Reagans and McEvily, 'Network structure'.
[133] Lynch, *Art and artifact in laboratory science: A study of shop work and shop talk in a research laboratory*, London: Routledge, 1985; Sorenson, et al., 'Complexity'.
[134] S. Milgram, 'The small-world problem', *Psychology Today*, 1, 5, 1967.
[135] Burt, 'Social capital'; Rost, 'Strength of strong ties'.

3.3.2. Visualising social interactions

The visualisation of social networks assumes that interactions between scholars formed as a result of activities associated with a common focus. Ties in the social networks indicate the *probability* of a relationship between two scholars, rather than a guarantee, with more constrained interactions assumed to correspond with a greater probability of a stronger relationship.[136] Each social network also assumes that interactions led to targeted communication between scholars about research, which is an avenue through which ideas might change. The analysis highlights the structure of social interactions in this intellectual community, as well as the avenues through which scholars may have influenced each other.

3.3.2.1 Co-location

Geographic space is a crucial dimension that structures social interactions and the diffusion of ideas. Co-location has been used in this thesis to map the geographic proximity between two individuals, under the assumption that if they worked at the same university, they were more likely to have contact than those who were geographically or institutionally distant.[137] This may be positive for their relationship, with scholars able to collaborate if they are in close proximity and there are good outcomes from their interactions. This may be negative though, causing conflict between those who may not get along, but continue to see each other through joint activities associated with a common location or workplace. Generally, the probability of social interactions decreases as the distance between them increases. Spatial distance increases the 'intervening opportunities', and is associated with higher travel costs and more difficult communication.[138]

In addition to a greater frequency of interaction, geographic proximity generally leads to greater diffusion of knowledge. This is because proximity leads to more in-person communication, which incorporates non-verbal cues to ensure that knowledge is received and understood effectively.[139] Tacit knowledge is particularly dependent on geographic proximity, with personal contact, face-to-face interaction, and trust necessary for its

---

[136] As in Feld's model above.
[137] See chapter 4 for a fuller discussion of how this has been done.
[138] Sorenson, et al., 'Complexity'; O. Sorenson and T. Stuart, 'Syndication networks and the spatial distribution of venture capital investments', *American Journal of Sociology*, 106, 6, 2001; P. Hedstrom, 'Contagious collectives: On the spatial diffusion of Swedish trade unions', *American Journal of Sociology*, 99, 5, 1994.
[139] Sorenson, et al., 'Complexity'.

diffusion between scholars.[140] Co-location network maps have been used in this thesis to show the probability of ties between scholars based on geographic proximity, and to indicate the link between geographic proximity, social interaction, and the diffusion of knowledge.

Co-location is a focus with a relatively loose constraint. Ties between scholars in co-location networks have been based on appointment to the same university, which are large organisations. However, there was variation in the constraint of each workplace. If scholars were simply appointed to the same university, the size of the organisation suggests there was a relatively low probability of a strong tie between scholars. However, some scholars were also appointed to the same department, which were smaller entities with a number of associated joint activities. Individual departments thus likely had higher constraint and a higher probability of strong ties. To keep co-location measurement consistent, no distinction has been made between those appointed to the same department or to the university. However, it is helpful to remember that co-location ties may indicate a variety of possible constraints and potential interactions, based on the characteristics of the particular institution.

3.3.2.2 Collaboration

Each form of collaboration included in this thesis is assumed to involve both interpersonal communication and the exchange of theoretical understanding and insights. Collaboration networks thus indicates a relatively high probability of both social and intellectual ties. As such, this form of interaction forms a conceptual link between social ties and the development of ideas.

Co-authorship is the most common way to map collaboration in an intellectual community,[141] and involves both communication and the exchange of ideas.[142] Co-authorship encompasses a variety of roles depending on the norms of the particular

---

[140] M. Polanyi, *Personal knowledge: Towards a post-critical philosophy*, Chicago: University of Chicago Press, 1958.
[141] B. Bozeman and E. Corely, 'Scientists' collaboration strategies: Implications for scientific and technical human capital', *Research Policy*, 33, 4, 2004; R. Fleischman and K. Schuele, 'Co-authorship in accounting history: Advantages and pitfalls', *Accounting, business and financial history*, 19, 3, 2009; Hu and Racherla, 'Knowledge networks'; Katz and Martin, 'Research collaboration'; D. Laband and R. Tollison, 'Intellectual collaboration', *Journal of Political Economy*, 108, 3, 2000; G. Laudel, 'What do we measure by co-authosrhips?', *Research Evaluation*, 11, 1, 2002; J. Moody, 'The structure of a social science collaboration network: Disciplinary cohesion from 1963 to 1999', *American Sociological Review*, 69, 2, 2004.
[142] Laudel, 'What do we measure'; Moody, 'Collaboration network'; M. Newman, *Networks: An introduction*, Oxford: Oxford University Press, 2010; Wang, et al., 'Knowledge networks'.

discipline. The *division of labour* spans all stages of the research process, with each partner offering knowledge or techniques, and contributing to the creative conceptualisation of the project.[143] *Vertical specialisation* involves the division between theoretical and experimental activities. Although both parties contribute, one is responsible for the conceptual foundations and direction of the project, while the other engages in the purely technical or experimental activities. This form of collaboration often involves supervisors and students.[144] Both vertical specialisation and the division of labour generally involve co-authorship, by convention. Beyond this, however, the rules for including someone as a co-author are permeable, with social factors, money, or power relations structuring the presence and order of authorship as much as intellectual contribution.[145]

In many instances, those who collaborate on a text are included as sub-authors rather than co-authors. Acknowledgments are a good indicator of peer interactions and a wide set of collaborative practices, indicating those who may have made an intellectual contribution to the text, albeit one that is insufficient to qualify for authorship.[146] Acknowledgments may reflect institutional dependencies, cronyism, personal apprenticeship loyalties, as well as informal collaborators. However, because acknowledgments are informal, they are not included in the reward system for academia.[147] Scholars thus have comparatively less motivation to include sub-authors for political or positioning reasons, making this a relatively genuine "tapestry of private interactions and interplays between scattered actors".[148]

Sub-authorship can include routine service collaboration (research assistants), access to equipment, the transmission of procedural knowledge, mutual stimulation, and trusted

---

[143] Laudel, 'What do we measure'.
[144] H. Peters and A. van Raan, 'Structuring scientific activities by co-author analysis: An exercise on a university faculty level', *Scientometrics*, 20, 1, 1991, p.246.
[145] A. G. Mainous III, M. A. Bowman and J. S. Zoller, 'The importance of interpersonal relationship factors in decisions regarding authorship', *Family Medicine*, 34, 6, 2002; S. X. Shen, 'Negotiating authorship in Chinese universities: How organizations shape cycles of credit in science', *Science, Technology & Human Values*, 2015; R. M. Slone, 'Coauthors' contributions to major papers published in the AJR: frequency of undeserved coauthorship', *American Journal of Roentgenology*, 167, 3, 1996.
[146] B. Cronin, 'Bowling alone together: Academic writing as distributed cognition', *Journal of the American Society for Information Science and Technology*, 55, 6, 2004; B. Cronin and K. Overfelt, 'The scholar's courtesy: A survey of acknowledgment behaviour', *Journal of documentation*, 50, 3, 1994; Katz and Martin, 'Research collaboration'; Laudel, 'What do we measure'; Mullins, *Theory and theory groups*; K. Subramanyam, 'Bibliometric studies of research collaboration', *Journal of Information Science*, 6, 1, 1983.
[147] Compare with citations and co-authorship, which are included in academia's reward system.
[148] Cronin, 'Bowling alone together', p.558. Wernick similarly argues that sub-authorship gets closer to "orally transmitted influence, the interdependence of one person's thoughts and achievements with another's". See A. Wernick, *Promotional culture*, Newbury Park, CA: Sage, 1991, p.169.

assessorship.[149] The latter two are particularly relevant to this thesis. *Mutual stimulation* involves informal communication, social interaction and diffusion of ideas, with scholars prompting each other to think about unsolved problems in their field, new research projects, or new interpretations. This is difficult to pinpoint empirically, but can be very important, as "a brilliant suggestion made by a scientist during casual conversation may be more valuable in shaping the course and outcome of a research project than weeks of labour-intensive activity".[150] *Trusted assessorship* involves those individuals who influence each other by offering feedback on work prior to publication.[151] Ideas and insights rarely appear in published form without having been shaped and critiqued by a handful of such trusted assessors.[152] Although this may be done remotely, trusted assessorship also generally involves interpersonal interaction and diffusion of ideas.

Of these two forms of collaboration, co-authorship is assumed to have relatively greater constraint. This is because, especially in the humanities and social sciences, norms dictate that each co-author has written a substantial portion of the text.[153] This process generally involves quite intense interaction and discussion of research. Sub-authorship is informal, meaning this focus has comparatively lower constraint. Sub-authors do not make a contribution sufficient to grant them authorship, so it is assumed that their interactions are also less than you would expect from a co-author. Compared to co-location, however, both formal and informal collaborations have greater constraint, with a higher probability of strong ties between scholars. This is because collaboration is generally voluntary, meaning scholars have sought each other out for the purpose of discussing research. Because of this, this thesis assumes that collaboration contributed relatively more to the social structure of the community.

PhD supervision normally involves geographic proximity, social interactions, and intellectual influence. PhD students are located in the same department as their supervisor, and often move to that location to begin their studies. Students are also involved in a 'cognitive apprenticeship', with the supervisor assisting the student with their project, encouraging them to think critically, and enculturating them to the community of practice for the field. The supervisor is thus partially responsible for the

---

[149] Laudel, 'What do we measure'.
[150] Subramanyam, 'Bibliometric studies', p.35.
[151] Cronin, 'Bowling alone together'; Laudel, 'What do we measure'; Mullins, *Theory and theory groups*.
[152] Cronin, 'Bowling alone together'.
[153] Laudel, 'What do we measure'; D. Henriksen, 'The rise in co-authorship in the social sciences (1980–2013)', *Scientometrics*, 107, 2, 2016.

techniques, abilities and intellectual characteristics of the student.[154] PhD supervision also involves a mentorship component, including recommending the student to relevant research and professional communities.[155] The supervisor acts as the gatekeeper to the group. Access to the field creates further social and intellectual interactions, and may lead to the student becoming a part of the community. These functions mean there can be long-lasting social and intellectual lineages from supervisors to students.

PhD supervision is traditionally thought of as a one-way coaching and mentorship relationship. However, there is some recognition that supervision involves collaboration and a two-way exchange of ideas. Generally, this is through a greater tendency for supervisors and students to collaborate.[156] Co-authorship may be due to mentorship functions, with the supervisor guiding the student through the process of publication.[157] It may also be due to division in expertise, with the student developing capabilities in a certain area, and the supervisor maintaining their contribution in others.[158]

The varieties of roles involved in PhD supervision mean there is very little agreement about the specific function it performs in intellectual communities. Depending on the personalities of the supervisor and student, the constraints on this focus are difficult to determine, with some relationships very intense, and others mild. Because of this, PhD supervision has not been visualised as a separate network in this thesis. However, the two functions of PhD supervision that are stable – co-location and a greater tendency to collaborate – have been utilised. The time spent studying for a PhD has been built into the co-location network for the economic history students, and their co-authorship and sub-authorship with supervisors has been visualised. A discussion of the nature and impact of PhD supervision forms a substantial part of the discussion in chapters 6 and 8.

---

[154] A. Collins, J. Brown and S. Newman, 'Cognitive apprenticeship: teaching the crafts ', in Resnik, ed., *Knowing, learning and instruction*, Hillsdale: Erlbaum, 1989; A. Lee, 'How are doctoral students supervised? Concepts of doctoral research supervision', *Studies in Higher Education*, 33, 3, 2008; M. Pearson and A. Brew, 'Research training and supervision development', *Studies in Higher Education*, 27, 2, 2002.

[155] R. Johnston, *The changing nature and forms of knowledge: A review*, Canberra: Department of Education, Training and Youth Affairs, 1998; Pearson and Brew, 'Research training'.

[156] Bozeman and Corely, 'Scientists' collaboration strategies'; M. Curry and T. Lillis, 'Academic research networks: Accessing resources for English-medium publishing', *English for Specific Purposes*, 29, 4, 2010; J. Katz, *Bibliometric assessment of intranational university-university collaboration*, PhD Thesis, University of Sussex, 1993; Laudel, 'What do we measure'; Subramanyam, 'Bibliometric studies'.

[157] Bozeman and Corely, 'Scientists' collaboration strategies'.

[158] Laudel, 'What do we measure'; Subramanyam, 'Bibliometric studies'.

The social network has also been understood through oral history interviews. Oral history allows scholars in the field at the time to be questioned about the various elements that influenced their approach to research.[159] For instance, scholars generally discussed the social and intellectual impact of PhD supervision, or the nature of their collaboration with others in the community. By specifically targeting these aspects, oral history links the social and knowledge networks for this group.

3.4. The knowledge network

The knowledge network is the sum of ideas, approaches, themes, and intellectual links between scholars and texts in this community. Analysing the knowledge network is based on theoretical frameworks that account for the development of intellectual traditions. This thesis is particularly informed by the social-deterministic approach to intellectual history, with similarity of ideas argued to be due to social interactions based on common focus. Intellectual traditions have been determined through both qualitative textual analysis, and quantitative citation analysis.

3.4.1. The formation of knowledge networks

Scholars may have similar ideas due to a variety of internal or external factors. The *history of thought* tradition, by examining unit-ideas across time and space, argues that similar ideas are due to a similar internal philosophy or way of thinking. The mind of the scholar is the only real factor that matters, and similar minds create similar ideas.[160] *Intellectual history* adopts a personal contextual approach, arguing that scholars have similar ideas due to a variety of external factors. Education, place of origin, or personality traits may encourage scholars to adopt similar approaches.[161] This may apply across time and space, with women, people of colour, those from working classes, or those with similar political orientations holding a shared view of the world, which may then inform their approach to research. On the other hand, the *institutional* approach argues that intellectual traditions develop through engagement with an organisation such as a university. Individual backgrounds are less important, in this view, than involvement with the particular

[159] See chapter 4 for a fuller discussion of this.
[160] Wickberg, 'Intellectual history'. See the work of Lovejoy, *Great chain of being*; M. Foucault, *The archaeology of knowledge*, London; New York: Routledge, 1969 for examples of this approach.
[161] *Sociology of science*, the *biographical* approach and the *sociol-contextual* view of intellectual history adopt this explanation. See chapter 2 for explanations of these perspectives.

research entity.[162] The *social-deterministic* view argues that it is social relationships that determine intellectual traditions. Interactions lead to communication and the diffusion of ideas between scholars.

The project primarily adopts a social-deterministic view, examining the ideas of scholars in relation to their social ties. It is also informed by the institutional approach, with social interactions developing through engagement with various universities and professional institutions. Personal contextual approaches have very little bearing on this thesis, simply because the sample is too large to gather data on the life histories of the whole group. The history of ideas does inform part of the analysis, with scholars occasionally having similar ideas independent of contextual intersections.

3.4.2. Determining intellectual traditions

There are a variety of explanations for *why* scholars might have similar ideas, but more limited are the ways in which these ideas are determined. There is a dependence on qualitative analysis, with written works assumed to be the recorded evidence of a scholar's ideas. For this thesis, a qualitative analysis of published texts has been supplemented by quantitative citation analysis.

The qualitative framework is informed by recent scholarship that has analysed the Australian economic history field. Lloyd has identified two main sources of difference between texts of economic history – ontology and epistemology.[163] *Ontology* reflects the entities that are assumed to exist within a system. For economic history, the ontology of the text refers to how the author sees the nature of the social world – whether the economy is the behaviour of individual actors or the behaviour of "irreducible structures of social, institutional and political relations".[164] *Epistemology* refers to methodology, or how the author gains knowledge about their subject. There is a broad spectrum of practice between instrumentalism, which manipulates and interprets models and data; and realism, which analyses real cases of economic change. Lloyd argues that this epistemological division can be seen as the difference between deductive, abstract model-building and inductive, historical explanation.

---

[162] See Jay, *The dialectical imagination*; Menand, *The metaphysical club*.
[163] Lloyd, 'Economic history and policy'.
[164] Lloyd, 'Economic history and policy', p.70.

Along these two branches of division within economic history, Lloyd identifies a number of 'regions' in which a text may exist. An *individualist-instrumentalist* approach regards actors as abstracted, utility-maximising individuals who interact as owners, sellers and buyers of the factors of production. The path to knowledge in this approach is through observations, hypotheses, model-building and deductive conclusions. An *individualist-realist* approach incorporates real actors into the analysis. The intention is to examine and explain the activities of historically real people, as well as their role in, and reactions to, real events. This approach utilises empirical realism and sensory evidence. The third region, *structural-realism*, argues that society is fundamentally structured by rules, roles and relations rather than individuals and their behaviour. The economy's structures are reproduced and modified over time by decisions made from those within that structure. This form of analysis necessarily produces an historical approach to social and economic life.[165]

Coleman has analysed published work in economic history using a series of spectra. The first is methodological, which differentiates between an 'economics' and a 'history' approach. There is also a spectrum that contrasts economic history that is epochal and thematic, with work that is episodic and sectional. Coleman has also outlined a spectrum between 'internalist' and 'externalist' economic history, with the former highlighting Australia's unique progress, and the latter emphasising Australia's interdependence with the global economy. The final spectrum contrasts between the historian "more interested in how the machine works, and the historian who is, at the bottom, more interested in what the machine can be put to do".[166] The latter approach forms the link between economic history and engagement in public debate.

A combination of Coleman and Lloyd's frameworks have been adopted to analyse the knowledge network. 'Approach' is used to encompass each scholars' way of answering questions in economic history, which includes Lloyd's epistemological differences, and Coleman's spectrum between the methodology of economics and history. Texts are analysed along a broad spectrum of practice between the statistical, deductive and instrumental method of the economist, and the qualitative and realist analysis of the historian. 'Interpretation' is used to determine differences in the questions that scholars ask and the answers they find. This includes the use of interpretive frameworks like the staples thesis or comparative economic history, as well as whether each scholar views

[165] Lloyd, 'Economic history and policy'.
[166] Coleman, 'Historiography', p.27.

Australia's past as internally or externally determined. The latter is based on Coleman's spectra. Tracing the use of interpretive frameworks is part of neither Coleman nor Lloyd's models, though it has been used implicitly in discussions of Australia's economic history field in the past.[167]

Citation analysis has also been used to determine intellectual traditions. Citations are seen as evidence of intellectual debts and the diffusion of ideas.[168] Published texts are symbols of the author's knowledge, and citation analysis measures the footprints of intellectual conversations about this knowledge.[169] Citations can thus show the ideas that are shared between different authors, the degree of similarity between authors and texts, the previous work that has contributed to a research agenda, or the place of a text in the wider context of the discipline.[170] Citations may also become 'standard symbols', which are interpretations of the cited work. This appropriation through citations means intellectual contributions can be overstated or misinterpreted. Citations also do not capture the array of factors that may have impacted the ideas in a text, with Crane arguing that "the use of citation linkages between scientific papers is an approximate rather than exact measure of intellectual debts".[171]

While primarily a measure of the knowledge network, citations also reflect aspects of the social network. Citations may indicate political orientations, reputation-making activities, academic lineage, 'window dressing', and social debts between authors.[172] This is the *interpretive theory*, which argues that citations are used as a method of convincing the academic community of the work's value and that, in turn, a text is cited not necessarily because of its quality, but because the 'tribe' has judged it to be valuable.[173] Similarly,

---

[167] Lloyd, 'Analytical frameworks' Schedvin, 'Midas and the merino'.
[168] McWilliams, et al., 'Who is talking to whom?'; A. Sharplin and R. Mabry, 'The relative importance of journals used in management research: An alternative ranking', *Human Relations*, 38, 1, 1985; Siler, 'Citation choice'.
[169] N. Kaplan, 'The norms of citation behavior: Prolegomena to the footnote', *American Documentation*, 16, 3, 1965; Siler, 'Citation choice'; H. Small, 'Cited documents as concept symbols', *Social Studies of Science*, 8, 3, 1978.
[170] L. Leydesdorff and O. Amsterdamska, 'Dimensions of citation analysis', *Science, Technology, and Human Values*, 15, 3, 1990; Newman, *Networks*; Siler, 'Citation choice'.
[171] Crane, *Invisible colleges*, p.20.
[172] S. Cozzens, 'Taking the measure of science: A review of citation theories', *Newsletter of the International Society for the Sociology of knowledge*, 7, 1, 1981; Crane, *Invisible colleges*; G. Gilbert, 'Referencing as persuasion', *Social Studies of Science*, 7, 1, 1977; N. Gondal, 'The local and global structure of knowledge production in an emergent research field: An exponential random graph analysis', *Social Networks*, 33, 1, 2011; Kaplan, 'Citation behavior'; R. Kostoff, 'The use and misuse of citation analysis in research evaluation', *Scientometrics*, 43, 1, 1998; T. Phelan, 'A compendium of issues for citation analysis', *Scientometrics*, 45, 1, 1999.
[173] Cozzens, 'Measure of science'; Gilbert, 'Referencing as persuasion'; Kaplan, 'Citation behavior'.

citations are subject to the 'Matthew Effect', in which highly cited authors are likely to continue to be cited disproportionately to their contribution, simply because they are perceived as influential.[174] Cozzens identifies the dual systems that citations operate in.[175] The *rhetorical* system operates when citations are establishing a link between two texts, and the *reward system* is utilised when a citation establishes a link between authors. A single citation may indicate a blend of the two systems, meaning they are a complicated metric that indicates both social and intellectual aspects of an academic community.[176] Citation analysis is used in this thesis, primarily as a measure of author-prominence and intellectual similarity within the knowledge network. However, the multitude of citation functions affects the interpretation of these citation results, and the degree to which they can be used to determine intellectual trends.

Finally, intellectual trends have been determined by oral history sources. Oral history has been used to study other intellectual communities, complementing the analysis of published work.[177] Oral sources offer a more enhanced understanding of how intellectual communities develop, how ideas form, and how scholars influence each other. These individual, subjective explanations for what it means to 'do research' are often missing from written records.[178] Scholars have been questioned on their main intellectual influences, how their approach to the subject was shaped, and the impact of certain events or collaborations. This helps disentangle the multitude of ways that intellectual influence can occur in an academic community.

3.5. Conclusions

This chapter has outlined the conceptual foundations for this thesis. Australia's economic history community has progressed through a number of phases, with the nature of knowledge, institutional developments, and social relationships affecting the progress of

[174] R. Merton, 'The Matthew effect in science', *Science*, 159, 3810, 1968.
[175] S. Cozzens, 'What do citations count? The rhetoric-first model', *Scientometrics*, 15, 5 - 6, 1989.
[176] Leydesdorff and Amsterdamska, 'Citation analysis'.
[177] See R. E. Doel, 'Oral history of American science', *History of Science*, 41, 2003; C. Weiner, 'Oral history of science: A mushrooming cloud?', *The Journal of American History*, 75, 2, 1988; E. Craver, 'The emigration of the austrian economists', *History of Political Economy*, 18, 1, 1986; P. Buhle, *Marxism in the United States: Remapping the history of the American left*, London: Verso Books, 1991; R. Emmett, 'Oral history and the historical reconstruction of Chicago economics', *History of Political Economy*, 39, Suppl 1, 2007; T. Mata and F. S. Lee, 'The role of oral history in the historiography of heterodox economics', *History of Political Economy*, 39, 2007; C. T. Morrissey, 'Oral history, memory, and the hallways of academe: Tenure decisions and other job skirmishes', *The Oral History Review*, 2000 for some examples.
[178] Doel, 'Oral history'; Weiner, 'Oral history of science'.

the field. The interdependence of the knowledge and social networks is emphasised. This draws on various theories that account for the development of interpersonal connections, and the effect these may have on ideas in a group. The knowledge and social networks are analysed using a range of sources. SNA is used to indicate the probability of ties between scholars based on joint activities, with the resulting communication a vehicle through which ideas can change. Oral history sources add more detail to these visual networks, with scholars directly questioned on the nature and impact of certain social interactions. The knowledge network is primarily analysed using a qualitative framework that determines the 'approach' and 'interpretation' of each scholar. Citation analysis complements this by quantitatively determining the prominence of certain authors and the similarity of texts. These conceptual foundations justify the procedures taken to understand the development of Australia's economic history community over time.

4. Methodology

Supported by the conceptual foundations in chapter 3, this chapter outlines the methodology used to understand the Australian economic history field. The main procedures are discussed, as are their relative benefits and limitations. Oral history, and social network maps based on co-location and collaboration ties, are the primary methods used to understand the social network. Qualitative analysis of published works, complemented by quantitative citation analysis, is used to analyse the knowledge network. The sources complement each other, and minimise the bias in any one method. The combination of methods is innovative for the study of intellectual history, and presents a story of the development of this community that more closely resembles the lived experience of each scholar.

4.1. Social network methodology

4.1.1. Oral history

Oral history is the "interviewing of eye-witness participants in the events of the past for the purposes of historical reconstruction".[1] It provides details of the undocumented experiences from those who participated in or observed past events.[2] The practice has anthropological foundations, with a long tradition of field researchers using similar methods to access the knowledge of local people in order to reconstruct the past.[3] Oral history professionalised during the twentieth century to become a key component of the history discipline.[4] Since then, the approach has enjoyed wide applicability to social, political, cultural, labour and intellectual history.

By recreating the 'multiplicity of standpoints' from an historical moment, oral history can fill gaps in knowledge, and can reaffirm or challenge received wisdom. It also shifts attention away from the small group of 'leaders', to those whose perspectives may not have been preserved in documentary sources.[5] Oral historians are able to interact with

---

[1] R. Grele, 'Directions for oral history in the United States', in Dunaway and Baum, ed., *Oral history: An interdisciplinary anthology*, Walnut Creek: Altamira Press, 1996, p.63.
[2] R. Perks and A. Thomson, *The oral history reader*, New York: Routledge, [1998] 2006; A. Thomson, 'Fifty years on: An international perspective on oral history', *The Journal of American History*, 85, 2, 1998.
[3] P. Leavy, *Oral history: Understanding qualitative research*, Oxford: Oxford University Press, 2011.
[4] P. Thompson, *The voice of the past: Oral history (3rd edition)*, Oxford: Oxford University Press, [1978] 2000; Thomson, 'Fifty years on'.
[5] Thompson, *Voice of the past*, p.6.

their subjects, engaging in a dialogue and asking questions that may not have been thought of at the time.[6] As a result, the process of writing history changes, becoming more creative, flexible and co-operative.[7]

The characteristics that make oral sources unique and dynamic also make them intrinsically subjective. Each interview involves 'strategies of containment', where interviewees may repress, misremember or distort memories.[8] They tend to disproportionately remember events from early adulthood, or those that seem in retrospect to have had an impact on their life.[9] Interviews constitute a single perspective, and there may be divergent recollections of the same event, disagreement over facts and emphases, and gaps in each individual's memory that can make historical reconstruction challenging.[10] Access to the original source is also an issue, with the transcript often the only part that is published.[11] By making an auditory source into a written one, this introduces bias by imposing punctuation and grammar, and disregarding tone and velocity of speech.[12] Memories may be distorted as time progresses and the values held by the interviewee change.[13] The interviewer also has an effect through their choice of hypotheses, the gaps in their research agenda, and interpersonal factors such as dress, speech, manners, gender, class, age, race, ethnicity or ideology.[14]

Oral historians attempt to minimise bias in interviews by adopting a more 'scientific' methodology.[15] However, an interview is a relationship embedded in a specific social and cultural context, and as such there is no single 'right' way to conduct oral history. Others have advocated more practical techniques such preparation, establishing rapport, the ability to listen and ask open-ended questions, the importance of allowing for silence,

---

[6] Thompson, *Voice of the past*; Perks and Thomson, *Oral history reader*.
[7] Thompson, *Voice of the past*.
[8] Thomson, 'Fifty years on'; A. Portelli, 'What makes oral history different', in Perks and Thomson, ed., *The oral history reader*, New York: Routledge, 2006.
[9] E. R. Weintraub, 'Autobiographical memory and the historiography of economics', *Journal of the History of Economic Thought*, 27, 1, 2005.
[10] Perks and Thomson, *Oral history reader*; Thompson, *Voice of the past*; A. Thomson, 'Anzac memories', in Perks and Thomson, ed., *The oral history reader*, London: Routledge, 1998; Thomson, 'Fifty years on'; K. Walker, J. Malkowski and D. Smith Pfister, 'A choreography of living texts: Selections from the ARST oral history project', *Rhetoric Review*, 33, 3, 2014.
[11] Portelli, 'What makes oral history different'; Thompson, *Voice of the past*.
[12] Portelli, 'What makes oral history different'.
[13] Thompson, *Voice of the past*; Thomson, 'Fifty years on'.
[14] Portelli, 'What makes oral history different' R. Grele, *Envelopes of sound: The art of oral history*, Chicago: Precedent, 1991 D. James, *Doña María's story: life history, memory, and political identity*, Durham: Duke University Press, 2000 V. Yow, '"Do I like them too much?": Effects of the oral history interview on the interviewer and vice-versa', *The Oral History Review*, 24, 1, 1997.
[15] Thompson, *Voice of the past*.

minimising the presence of the recording device, sampling widely, and having some rules for determining the reliability of sources.[16]

Oral history has been applied to the study of intellectual history, with scholars increasingly aware of the fragmentary and unreliable naure of written sources. Oral history has enhanced the understanding of how intellectual communities develop, how ideas form, and how individuals influence each other. This illuminates the more nuanced aspects of what it means to 'do research' that is often missing from written records.[17] Oral history has also been used within a wider 'life history' framework, complementing correspondence, autobiography, photographs, and official records to reconstruct the history of individuals or groups.[18]

The most common application of oral history to the discussion of scholarly communities has been through published transcripts with prominent scholars. Many universities have oral history projects that compile career reflections for emeritus faculty or Nobel laureates.[19] Journals and societies also reproduce transcripts with eminent scholars in their field.[20] While these are valuable sources, they are often collected without critical appraisal, or discussion of their contribution to a specific research question. In some cases, by neither verifying the source, nor compiling it with others of a similar group, transcripts become a series of stories rather than a rich historical source that enhances the narrative of scholarly communities. Exceptions include oral history projects that focus on the development of specific research communities.[21]

---

[16] C. Morrissey, 'On oral history interviewing', in Dexter, ed., *Elite and specialised interviewing*, Evanston, IL: Northwestern University Press, 1970, p.108; Thomson, 'Fifty years on'; Portelli, 'What makes oral history different'

[17] Doel, 'Oral history'; Weiner, 'Oral history of science'.

[18] Mata and Lee, 'Role of oral history'; Emmett, 'Oral history'; A. M. Wald, *The New York intellectuals: the rise and decline of the anti-Stalinist left from the 1930s to the 1980s*, UNC Press Books, 1987; Weiner, 'Oral history of science'.

[19] For example, the ANU's emeritus faculty oral history project.

[20] For example, interviews with Max Corden and Bob Gregory in *Economic Record*, see W. Coleman, 'A conversation with Max Corden', *Economic Record*, 82, 259, 2006; W. Coleman, '"The power of simple theory and important facts': A conversation with Bob Gregory', *Agenda: A Journal of Policy Analysis and Reform*, 16, 2, 2009. See also a series of interviews in the *Journal of Urban History* in the late 1970s.

[21] From Thomas S. Kuhn's early study of the ageing leaders of the quantum physics revolution of the mid-1920s, the history of science has seen the greatest number oral history projects, see Doel, 'Oral history'; Weiner, 'Oral history of science' for a review. The history of economics, philosophy, political thought, medicine, and others have also received attention. See Craver, 'Austrian economists'; Buhle, *Marxism in the United States*; Emmett, 'Oral history'; Mata and Lee, 'Role of oral history'; Morrissey, 'Oral history'.

For this project, scholars were selected based on their status as key members of the Australian economic history field from 1950 to 1991. This includes all editors of the journal, those who held key appointments in economic history, those who were involved in the society, or those who made a substantial contribution to the literature. The focus is on economic historians who lived and worked in Australia on Australian research topics. Noel Butlin was a key member of this group, and members of his familial and close professional networks were approached. From this initial selection, further scholars were approached based on the recommendations of earlier interviewees, including those who may have had limited formal contribution to the field, but who were important to the community through informal interactions. Through these various criteria, those approached for this study form much of the 'core' Australian economic history community in this period. Those who were interviewed are listed in Appendix E.

The criteria adopted here has some limitations. The community contained a number economic historians who were engaged in overseas topics, and a number who lived overseas but worked on Australian topics. These scholars were not approached for an interview, but may have had insights about the development of the field. The boundaries of the group are also permeable, and it is sometimes difficult to distinguish between economists, historians, and economic historians. An ideal sample would include all those who engaged with economic history. However, to extend the sample in this way would have increased the size of the interview group to unmanageable proportions, sacrificing the breadth and depth of interviews that were conducted. Additionally, while there was encouraging interest in the project overall, there were a number of key economic historians who were unable to participate.[22] The oral history sources are thus incomplete, with around 75% of the ideal sample interviewed. Sources are also skewed in favour of those active in the 1970s and 1980s.[23] In the case of Noel Butlin, this bias was partially corrected by incorporating the oral history interview conducted shortly before his death in 1991.[24]

Interviews were conducted one-on-one, with the exception of Tony Dingle and Graeme Davison, who were interviewed together.[25] Interviews ranged in length from about 45

---

[22] Some, like Butlin, Barnard, and McCarty, are unfortunately deceased. Others, such as Snooks and Cain were approached for an interview, but were not available.
[23] Though there were some, there were relatively fewer scholars available to discuss the development of the field in the 1950s and 1960s.
[24] S. Foster, *Interview with Emeritus Professor Noel George Butlin*.
[25] The interview was initially scheduled with Tony Dingle, but at his suggestion Graeme Davison was invited to join.

minutes to 2 hours, beyond which there were minimal marginal gains and increasing fatigue. Lines of questioning focussed on relevant themes but were generally open-ended, encouraging interviewees to say what they thought rather than what they thought the interviewer might want them to say. Questions focussed on the professional and social networks of scholars, their approach to economic history, and the links between economic history and other fields.[26] Inconsistencies were not corrected by the interviewer, though occasionally interviewees were prompted if they couldn't remember certain minor details. Interviewees were encouraged not to answer any questions with which they were uncomfortable, in order to avoid issues of sensitive material.

These interviews have produced a series of detailed qualitative sources that describe the development of Australia's economic history community. There are a number of important points of consensus, which suggests that these sources are relatively reliable. Interviews reflect the specific personalities and experiences of the participant, with scholars emphasising those factors that were crucial to the development of their community at the time. By interacting with participants, the interviewer was able to directly target those aspects of the written record that were missing or neglected. In particular, the links between institutions, social interactions, and ideas were elucidated, with interviews disentangling the variety of avenues through which intellectual influence may occur. By compiling a range of perspectives and discussing previously neglected aspects of the community, interviews provide a diverse expression of the development of Australian economic history that complements the other sources in this thesis.

These characteristics of oral history have also introduced bias into the study.[27] Some interviewees were quite elderly, and had incomplete or incorrect memories. Interview sources are undoubtedly subjective, reflecting the specific personalities and experiences of participants. For example, scholars generally viewed their home institution as significant beyond the importance others would attribute it. Those involved in the Society, the journal or in large collaborative works tended to highlight those as the crucial factors for the development of the community. Some themes, such as the development of the Economic History Society of Australia and New Zealand (EHSANZ) in the 1970s, involved significant disagreement amongst interviewees.[28] Thus, participants' memories were limited by their own experiences. Some interviews were interrupted if they were held in a public place, or

[26] A common schedule of interview questioning can be found in Appendix E.
[27] Perks and Thomson, *Oral history reader*; Thompson, *Voice of the past*; Thomson, 'Anzac memories'; Thomson, 'Fifty years on'; Walker, et al., 'Choreography'.
[28] See the discussion of the EHSANZ in chapter 8.

were limited by the time available. Sources were also affected by the personalities of each party involved, their mood on the day, their age, their gender, and the outcome of any prior interactions. While not necessarily correcting for this bias, the project adopts many of the practical aspects recommended by other oral historians, including preparation, wide sampling, and verifying sources both across interviewees and with written sources where appropriate.

4.1.2. Social network analysis

To understand the structure of social relationships in the Australian economic history community, various social and professional interactions are visualised using social network analysis. SNA is a collection of visual and numerical methods that can be used to analyse the pattern of relationships among individuals. It has many applications to contemporary and historical issues. The analysis of separate disciplines is the most frequent application of SNA to academic communities, and is usually conducted as a form of self-reflection by the members of the group. Studies of the sociology, information science, management, accounting, hospitality research, economics, and biology disciplines have analysed issues such as the type of communication between scholars, the nature and reason for citation patterns, the reasons for collaboration, and the social and intellectual cohesiveness of the discipline.[29] SNA has generally been used to examine contemporary intellectual networks, with very few studies utilising this method for historical intellectual communities.[30]

---

[29] C. Cappell and T. Guterbock, 'Visible colleges: The social and conceptual structure of sociological specialities', *American Sociological Review*, 57, 2, 1992; Moody, 'Collaboration network'; Siler, 'Citation choice'; Ding, 'Scientific collaboration'; G. Gable, S. Gregor, R. Clarke, G. Ridley and R. Smyth, *The information systems academic discipline in Australia*, Canberra: ANU ePress, 2008; H. White and K. McCain, 'Visualising the discipline: An author cocitation analysis of information science, 1972 - 1995', *Journal of American Society for Information Science*, 49, 1, 1998; K. Euske, J. Hesford and M. Malina, 'A social network analysis of the literature on management control', *Journal of Management Accounting Research*, 23, 1, 2011; Gondal, 'Knowledge production'; McWilliams, et al., 'Who is talking to whom?'; T. Ying and H. Xiao, 'Knowledge linkage: A social network analysis of tourism dissertation subjects', *Journal of Hospitality and Tourism Research*, 36, 1, 2012; Beattie and Davie, 'Accounting discipline'; Fleischman and Schuele, 'Co-authorship'; Hu and Racherla, 'Knowledge networks'; Laband and Tollison, 'Intellectual collaboration'; R. Pieters and H. Baumgartner, 'Who talks to whom: Intra- and interdisciplinary communication of economics journals', *Journal of Economic Literature*, 40, 2, 2002; Pieters and Baumgartner, 'Who talks to whom'; L. Lievrouw, 'Reconciling structure and process in the study of scholarly communication', in Borgman, ed., *Scholarly communication and bibliometrics*, Newbury Park: Sage, 1990.

[30] See chapter 2.

In each network map, a participant or individual is referred to as an *actor* and is represented as a *node*. Actors can be individuals, organisations, texts or any other group of related entities. In this thesis, actors are individual scholars. Relationships between actors are shown as lines in the network, called *ties.* Ties can be *binary*, meaning the relationship is either present or not. *Valued* ties show both the presence and strength of the relationship, with a thicker tie indicating a proportionally stronger relationship between actors. Ties in a network can be either *directed* or *bonded-tie*, with directed networks indicating a 'giver' and a 'receiver' of the tie, and bonded-tie networks describing reciprocal relationships. Each network in this thesis is valued and bonded-tie, indicating the intensity and reciprocity of each relationship.

Each network map has been constructed through an excel matrix. This lists the actors on both the horizontal and vertical axes, with the number at the junction of two actors describing the presence and strength of the relationship between them. These matrices have then been analysed with *UCINET* and visualised with *NetDraw*. *UCINET* was designed by leading social network researchers – Lin Freeman, Steve Borgatti and Martin Everett – to allow others to undertake the kind of analyses they themselves were conducting. *UCINET* is an established, well-regarded and stable platform for SNA.[31] The closest alternative, *Pajek*, is considered better at handling large datasets and has a broader range of highly-sophisticated options. However, as these features are not necessary for this thesis, *UCINET* has been chosen as the network analysis software.

NetDraw is provided with the *UCINET* program, and the two platforms work together quickly and easily. Although the pixilation of network maps in *NetDraw* is not as visually appealing as other options (*Gephi*, for instance), the quality of the analysis and the ease with which the program works with *UCINET* makes it the preferred option.

4.1.3. Network maps that visualise the social network

4.1.3.1 Co-location analysis

Co-location maps are used to visualise potential interactions between scholars based on geographic proximity, with previous work finding that proximity increases the incidence

[31] J. Scott, *What is social network analysis*, London: Bloomsbury Academic, 2012 Hanneman and Riddle, *Social network methods*.

of academic collaboration and the diffusion of ideas.[32] Co-location is an important part of Feld's foci framework, with a similar city or workplace increasing the chance that two scholars will meet and interact.[33] Some have questioned the importance of proximity, with complementary skills and similarity of approach argued to be more important for collaboration.[34] These explanations can be reconciled by arguing that geographic proximity can fill in the gaps where other motivations for interaction fail. For example, if two scholars speak a different language, are part of different disciplines, or do not have common acquaintances, co-location may be the factor that sparks their association.[35]

Co-location networks have been analysed in part two and part three of this thesis. Appendix A shows the co-location information for scholars in this community, including the years each scholar spent at each of the 11 main universities between 1950 and 1991. These data are based on official university staff lists and annual reports, which are transparent, verifiable, and reliable sources. It assumes that more time spent within close geographic proximity increases the chance that two scholars would meet and interact. Thus, those who were employed by the same university for a greater number of years are assigned thicker ties in the network. If two scholars were both employed by the same university in the same year, their relationship is given a score of one. If they were both employed by the same university for two years their relationship is given a score of two, and so on.

A limitation of this method is that the co-location maps do not account for the various configurations that existed within institutions. To produce data which describe the core premise – geographic proximity and a shared workplace – no distinction is made between scholars who were within the same department and those in a different department or faculty. This 'flattens' the network for the group and attributes the same ties to those regardless of their institutional sub-structure. To overcome this, the co-location maps

---

[32] T. Allen, *Managing the flow of technology*, Cambridge, MA: MIT Press, 1977; D. Audretsch and M. Feldman, 'R&D spillovers and the geography of innovation and production', *American Economic Review*, 86, 1, 1996; M. Feldman, 'The new economics of innovation, spillovers and agglomeration: A review of empirical studies', *Economics of Innovation and New Technology*, 8, 1, 1999; W. Hagstrom, *The scientific community*, New York: Basic Books, 1965; Hussler and Ronde, 'Cognitive communities'; Jaffe, et al., 'Geographic localization'; Katz, *Bibliometric assessment*; Katz, 'Geographical proximity'; Ponds, et al., 'Research collaboration'; Van Oort, *Urban growth and innovation*.

[33] See chapter 3.

[34] Boschma, 'Proximity and innovation'; S. Breschi and F. Lissoni, 'Knowledge spillovers and local innovation systems: A critical survey', *Industrial and Corporate Change*, 10, 1, 2001; J. Howells, 'Tacit knowledge, innovation and economic geography', *Urban Studies*, 39, 1, 2002.

[35] Ponds, et al., 'Research collaboration'.

have been combined with oral history and archival sources that illuminate the activities of separate departments.

4.1.3.2 Collaboration

Collaboration in this community is measured in three ways: co-authorship, contributions to edited works, and sub-authorship. These measures of collaboration are the conceptual link between the social network and the knowledge network, as they all require varying levels of interpersonal interaction and intellectual exchange.[36] Co-authorship analysis is the most common method used to describe collaboration in an intellectual community, as it is based on readily available and easily verifiable data.[37] It indicates relatively intense interaction between scholars, as well as discussion about research questions, theoretical frameworks, and methodologies. Contributions to edited works are rarely used to indicate collaboration in intellectual communities. The relative significance of edited volumes to the Australian economic history field makes it an appropriate collaboration measure to include.[38]

Mapping formal ties is the most common way to measure collaboration, however these networks may misrepresent the level of connection between the two scholars. It has been found that only about half of all collaboration is measured through formal channels.[39] For this community, this may be due to the post-WWII time period, with relatively low levels of co-authorship at this time.[40] It may also be due to the domain of knowledge at hand, with formal collaboration generally lower amongst the humanities and social sciences than in natural science disciplines.[41] Networks based on co-authorship and contributors to edited works are thus likely to understate the level of collaboration between scholars in Australian economic history.

---

[36] Laudel, 'What do we measure'; Moody, 'Collaboration network'; Wang, et al., 'Knowledge networks'; M. Newman, 'Coauthorship networks and patterns of scientific collaboration', *Proceedings of the National Academy of Sciences of the United States of America*, 101, S1, 2004.
[37] Bozeman and Corely, 'Scientists' collaboration strategies'; Fleischman and Schuele, 'Co-authorship'; Hu and Racherla, 'Knowledge networks'; Katz and Martin, 'Research collaboration'; Laband and Tollison, 'Intellectual collaboration'; Laudel, 'What do we measure'; Moody, 'Collaboration network'.
[38] See oral history evidence about edited works in chapters 6 and 8.
[39] Katz and Martin, 'Research collaboration'; Laudel, 'What do we measure'.
[40] Moody, 'Collaboration network'; D. Henriksen, 'The rise in co-authorship in the social sciences, 1980–2013', *Scientometrics*, 107, 2, 2016; Laudel, 'What do we measure'.
[41] Laband and Tollison, 'Intellectual collaboration'; C. A. Sula, 'Visualizing social connections in the humanities: Beyond bibliometrics', *Bulletin of the American Society for Information Science and Technology*, 38, 4, 2012; Henriksen, 'Co-authorship'.

To examine a wider range of collaborative practice, networks based on sub-authorship are also examined. For this community, sub-authorship networks capture informal collaboration through *mutual stimulation* and *trusted assessorship*.[42] In the literature, although the impact of sub-authorship on intellectual communities has been recognised, it is rarely analysed visually and quantitatively. This is because data from the acknowledgments of a text are generally not digitised. Laudel's analysis of sub-authorship is the exception, in which the text from acknowledgments is analysed to determine the various roles that sub-authors perform.[43]

Collaboration networks are analysed in part two and part three of this thesis. Co-authorship has been recorded simply as those who jointly published a book or article that is considered part of the corpus of texts for this community.[44] Joint editors of a particular text are also considered co-authors. Contributors to the main edited works have been recorded separately, with each contributor assumed to have had a collaborative relationship with the editor, but not with each other. Sub-authorship has been based on those individuals listed in the acknowledgments or preface of a published work. Though acknowledgments generally include a diverse range of individuals (such as librarians, archivists, or family members), only academic collaborators have been included in these networks. Collaboration networks are bonded-tie, assuming two-way communication and intellectual exchange. The networks are also valued, with an interaction score of one given to scholars for each separate text they collaborated on. This accounts for variations in the intensity or longevity of each collaborative relationship.

Although this thesis compiles a comprehensive set of collaboration networks, it assumes all formal and informal collaborative relationships are preserved in the written record, and that each recorded collaboration involved certain social and intellectual functions. In practice, this may not have been the case, with collaborators listed for financial or power obligations. Further, the networks assume that all collaborative relationships, within the same 'type', are equal in intensity and function. To account for this, qualitative analysis and oral history interviews are used to interrogate the nature of collaborative relationships mapped in the social networks.

---

[42] Katz and Martin, 'Research collaboration'; Laudel, 'What do we measure'. See chapter 3 for a discussion of this.
[43] Laudel, 'What do we measure'.
[44] See Appendix B for a list of these key texts.

4.1.3.3 PhD supervision

The PhD process is an important part of the social network of any intellectual community. Supervisors influence their student's professional development through geographic proximity, social interactions, and a two-way exchange of ideas.[45] There has been some basic visualisation of student-supervisor interactions in the form of academic genealogies. These visualise 'family trees' for major disciplines, indicating that the supervisor 'passes down' knowledge, techniques and professional contacts to their students.[46]

While there is certainly scope to visualise PhD supervision for Australia's economic history field, it has not been done for this thesis. This is because PhD supervision was not widespread, including a relatively small proportion of scholars as either students or supervisors. Second, oral history and qualitative evidence suggests that the process of PhD supervision varied substantially between scholars and institutions. Some of these lived experiences justify visualising this interaction with a strong tie, others do not justify a tie at all. Because of this, quantifying this complex and diverse connection is inappropriate in this case. Instead, the two functions of PhD supervision that are stable – co-location and greater tendency to collaborate – have been visualised in the other social network maps. Excluding PhD supervision means that the social networks are incomplete representations of social relationships in this community. To account for this, extensive discussion of the nature and impact of PhD supervision, based on collaborative networks, qualitative analysis, and oral history testimony, is incorporated into part two and part three of this thesis.

4.1.4. Combining and visualising the social networks

Social network maps visualise co-location and collaboration ties between scholars. Each map illuminates an additional element of this community, with different social networks often used alongside one another to gain a more complete picture of the group.[47] There are

---

[45] Bozeman and Corely, 'Scientists' collaboration strategies'; Curry and Lillis, 'Academic research networks'; Katz, *Bibliometric assessment*; Laudel, 'What do we measure'; Subramanyam, 'Bibliometric studies'. See chapter 3 for a discussion of this.
[46] See examples of web-based academic genealogies, NDSU Department of Mathematics, 'Mathematics genealogy project', retrieved 20th February 2017, from https://genealogy.math.ndsu.nodak.edu/; Neurotree.org, 'The academic family tree', retrieved 3rd January 2017, from https://academictree.org/.
[47] L. Lievrouw, E. Rogers, C. Lowe and E. Nadel, 'Triangulation as research strategy for identifying invisible colleges among biomedical scientists', *Social Networks*, 9, 3, 1987; K. Studer and D. Chubin,

very few examples where social networks are combined systematically to show the overall pattern of interactions. Krischel and Fangerau have combined binary measures of correspondence, citations, common membership of societies, personal relationships, and intellectual references, with a total possible interaction score out of five.[48] However, this doesn't account for relative intensity of interaction within or between these networks.[49] Sula has recommended the combination of citation networks with social networks, arguing that assigning weights to different interactions would result in a "hybrid visualisation that is more inclusive than either of the simple visualisations alone".[50] For this project, the combination of social networks is feasible, as all are bonded-tie and indicate the probability of social interactions and communication about research. Sula's guidance is taken, and in the analysis that follows the co-location and collaboration networks are combined by weighting the different interactions according to their assumed relative intensity.

Co-location ties describe a relatively low chance of a relationship, as there is no guarantee of communication between those in different departments or faculties.[51] Sub-authorship ties describe a higher chance of a relationship, with at least some discussion of research and ideas. Contributions to edited works are assumed to involve similar activities to sub-authorship (feedback and discussion of ideas), with a similar chance of a relationship between chapter authors and editors. Co-authorship is assumed to describe the highest chance of a relationship, with the process of formal collaboration involving intense interaction and a substantial integration of ideas. These assumptions are contingent on the intellectual community under consideration here, with lower tendency for co-authorship in the humanities and social sciences corresponding with a greater chance that when formal collaboration *did* emerge, there was probably a relationship between those scholars.[52]

Cancer mission: Social contexts of biomedical research, Beverly Hills: Sage Public, 1980; Wang, et al., 'Knowledge networks'.

[48] Krischel and Fangerau, 'Historical network analysis'.

[49] For instance, no distinction is made between those who sent 10 pieces of correspondence and those who sent 100. There is also no distinction between the difference in intensity of interaction between citations and personal relationships.

[50] Sula, 'Visualizing social connections', p.34.

[51] Though, as argued above, within university structures may mean that co-located actors could be involved in either the loosely-constrained university, or the tightly-constrained individual department.

[52] Laudel, 'What do we measure'; Henriksen, 'Co-authorship'.

Table 4.1: Social network overall descriptive statistics

	Number of active nodes	*Total number of ties*	*Average number of ties*	*Average tie strength*
Co-location	200	7070	35.35	9.46
Co-authorship	56	150	2.68	1.34
Contributors to edited works	69	241	3.49	1.03
Sub-authorship	215	677	3.15	1.15

Note: Cohesion scores calculated from social networks in parts 2 and 3. Tie strength measured by the number of separate texts that the pair of scholars collaborated on.

From these ranks, the overall social network has been estimated by applying weights to each network. The relative 'distance' between networks has been determined through some basic descriptive statistics.[53] This tailors the methodology to the case study at hand. Table 4.1 shows that the collaboration networks for this case study had relatively similar characteristics – scholars in these networks collaborated on between 1 and 1.5 texts (average tie strength), and were tied to an average of between 2.5 and 3.5 other scholars (average number of ties). Scholars in the co-location network, on the other hand, had many more ties, and these ties had much greater weight. Scholars in the co-location network had an average tie strength of 9.5, and were tied to an average of 35.5 other scholars.

Based on these statistics, in order to place the co-location and collaboration networks on a level playing field, the analysis assumes the 'distance' in their relative strength is approximately a factor of 10. Within the collaboration networks, based on relevant theory in chapter 3, the analysis assumes that sub-authorship and contributors to edited works networks are equally-weighted. Co-authorship is assumed to be twice as strong a form of interaction as sub-authorship and contributors to edited works. These assumptions result in the ranks and weights reported in Table 4.2.

[53] The networks are presented and analysed in full in chapters 6 and 8.

Table 4.2: Ranks and weights for combined social network

	Rank	*Weight applied*
Co-authorship	1	20
Sub-authorship	2	10
Contributors to edited volumes	2	10
Co-location	3	1

Although the results from these assumptions are relatively 'robust',[54] the method used to combine social networks assumes uniformity of interactions within a certain type, and a set relationship between different types. While these assumptions are based on appropriate theoretical frameworks and the case study, at the individual level there will likely be exceptions. To account for this, the analysis of social networks has been combined with qualitative analysis and oral history. This provides more detail about the nature and effect of social interactions.

Visualising the social network has required the determination of boundaries for the community. The scope for including scholars in the network is treated inclusively, but some 'cleaning' of the raw data has been done. Collaborators are included if the particular text is a part of the corpus for this thesis.[55] Some scholars collaborated on texts that were either not economic history, or were not about Australia. To maintain the focus on the Australian economic history community, these ties are not included. Similarly, some of the edited works included in this thesis had sections that were either from a different discipline, or about a different country.[56] These chapters are not included in the corpus, and their authors are not included in the social network. For the sub-authorship networks, as mentioned above, any non-academic collaborators have been removed. This includes family members, librarians, archivists, and private sector individuals. Research assistants are included if they then went on to have an academic career in Australian economic

[54] Changing the 'size' of each weight, but maintaining the proportional difference between them, does not change the visualisations or the metrics. Changing the proportional difference in weights (such as weighting each category with 1, 2 and 3 respectively) changes the visualisation slightly. While the pattern of connections remains the same, the emphasis in the map changes. In this scenario, co-location connections are emphasised over collaboration, with the location-based clusters dominating the network..

[55] See Appendix D for a list of these texts.

[56] For instance, the majority of *The Simple Fleece* is written from natural scientists, some of the chapters in *Recovery* were not about Australia, some of the sections of Vamplew's *Australian Historical Statistics* were about the natural environment.

history (or in adjacent areas). The emphasis here is on those professional connections with which the scholar may have received feedback or assistance.

For the co-location maps, data on university appointments have been collected on all scholars who were part of the collaboration networks.[57] Those who held tenured economic history positions are also generally included. Those who contributed to the main literature in the field, either through monographs or the journal, are incorporated. However, co-location is only based on ties between scholars at the 11 main Australian universities that fostered economic historians at this time.[58] Ties between scholars at other institutions are not included in the network. This means that the social networks may not capture all ties between scholars in this period. However, these omissions are probably fairly minor.

The networks have been visualised with *NetDraw*. Visualisations have analytical power, allowing the identification of relationships, patterns and outliers that are obscured in qualitative or quantitative analysis. For this thesis, *NetDraw*'s in-built spring embedding function, with Gower scaling, has been used to place nodes with more shared ties closer together, and move those with fewer ties further apart. This means that individuals who had stronger ties, or who shared common connections, are placed together in a cluster. Spring-embedding is a popular way to represent data in the literature, as it makes it easy to identify clusters and understand broad trends.[59] However, particularly in the presence of very large networks, this method can obscure individual connections. This is an issue for the large and complex co-location maps in chapters six and eight. Having said this, the intention of these maps is to identify broad clusters of those located in the same city – similarly to an impressionistic painting – rather than interrogating each individual connection. More sparse collaboration maps complement the complex co-location networks to provide a clearer image of the structure of social relationships.

In each network, nodes are initially placed based on the combined social network. Then, each type of tie is highlighted in a separate graph, leaving the nodes fixed. Although this may obscure the structure of the individual networks, it aids the comparison of different social relationships, and visually indicates the extent to which the collaboration and co-location ties followed similar patterns. In each figure, names have been replaced by

---

[57] See Appendix A: Co-location details.
[58] ANU, Melbourne, Sydney, UNSW, Monash, Flinders, Adelaide, UNE, Qld, UWA, La Trobe.
[59] H. Gibson, J. Faith and P. Vickers, 'A survey of two-dimensional graph layout techniques for information visualisation', *Information Visualization*, 12, 3-4, 2012.

initials. This de-clutters the map and helps discern the overall pattern of relationships. Names, initials, and the networks to which each individual belonged are listed in Appendix C.

4.1.5. Social network metrics

For each social network, *UCINET* is used to compute a series of simple network metrics. These are used comparatively, to show changes in the structure of the network (cohesion), or to describe an individual's relative importance in the group (centrality). These metrics assume that prominence emerges from the connection between scholars, and that a more connected network is a better vehicle for the diffusion of ideas. This may provide an overly simplistic representation of complex human relationships. To account for this, the metrics are used alongside visualisations, and qualitative sources, to understand this community.

Centrality scores describe the importance of each individual in the network based on their position relative to others.[60] An actor may be more important because they have more connections. This is reflected in *degree* scores, which measure the number of nodes an individual is connected to. A higher degree score indicates the individual has the opportunity to influence more people, and is less dependent on any one person for information.

Other metrics emphasise both the number and relative position of ties. *Betweenness* is measured as the proportion of shortest paths to other nodes that pass through the particular actor. If the node has a high *betweenness* centrality, they are influential because they are the path through which ideas travel through the network. They are thus able to control the diffusion of ideas and can broker contacts. Phillip Bonacich has argued that power is based on the difference between how well connected you are, and how well connected your connections are. He distinguishes between *centrality* and *power*, arguing that if someone is connected to other well-connected people, they are probably central to the network, but they may not be able to exert much power over them. On the other hand, if an actor's connections are largely isolates, they are probably not all that central, but they are powerful because other actors are dependent on them for information. Recognising this, *bonacich power* is calculated by giving each node a centrality score, and then

[60] Hanneman and Riddle, *Social network methods*.

adjusting the score based on whether the actor's connections are also well-connected, or are isolates.[61]

The social network analysis in this thesis utilises *degree* and *betweenness* most frequently. Even though *bonacich power* is widely argued to be a superior measure of 'power' in a network, *betweenness* is a closer conceptual match to the themes of the analysis. By measuring the extent to which actors lie on the path between different nodes, *betweenness* is a good indication of those who were important for forming connections between individuals, groups, and domains of knowledge.

Cohesion scores are macro-level descriptions of the network. *Average degree* is simply a normalised measure of individual degree scores, and describes how well-connected the community is. *Density* indicates the number of ties held by actors, divided by the number of possible ties. In a network where everyone is connected, density would equal one. Dense networks can diffuse ideas amongst participants quickly, and generally have greater social capital. Clusters, sub-groups and outliers decrease density, making it harder for nodes to receive information or contacts from the 'core' of the network.[62] *Average degree* and *density* have been used to compare changes in the social networks over time.

Social network analysis is a key methodology in this thesis, and much of the discussion in parts two and three rests on the visualisation and analysis of social networks. Networks assume uniformity in the nature and effects of ties in a certain category, and a set relationship between ties in different categories. The methodology is thus reductionist, neglecting the nuance of interpersonal relationships. To account for this, the social networks have been combined with qualitative analysis and oral history to interrogate individual differences in the nature and effect of social relationships.

4.2. Knowledge network methodology

The knowledge network is analysed using a combination of qualitative and quantitative sources. The analysis of texts, and collaboration, is based on a corpus of key works of Australian economic history written between 1950 and 1991. 'Economic history' has been defined relatively narrowly, including texts that predominantly discuss economic change over time (20 years or more). Texts are selected from wide reading of the subject, with

---

[61] P. Bonacich, 'Power and centrality: A family of measures', *American Journal of Sociology*, 92, 5, 1987; Hanneman and Riddle, *Social network methods*.
[62] Hanneman and Riddle, *Social network methods*.

further guidance from secondary analyses that focus on the published work of the field.[63] This literature is helpful for determining the key authors, the main debates, and the major works for the community. The corpus has been filled out by including the main joint projects, and the contents of the community's journal – the *Australian Economic History Review* (*AEHR*). This list of key texts is not exhaustive, rather the aim is to include a fairly representative sample of the Australian economic history literature at this time. The texts included in the corpus are listed in Appendix D.

4.2.1. Qualitative analysis

All texts in the corpus have been analysed qualitatively, focussing on the approach and interpretation of each author. Textual analysis is the primary methodology for intellectual history, with published works used to understand the ideas of scholars over time. One of the most enduring iterations of intellectual history, the *history of thought*, focusses on the analysis of 'unit-ideas' within texts. As the study of intellectual history has progressed, there has been greater emphasis on biographical, institutional or sociological forces, and the field now employs a wider variety of techniques and historical sources.[64] However, *ideas* have remained the centrepiece of analysis, with contextual forces used to sustain a narrative around the analysis of texts.

The qualitative analysis is guided by the qualitative framework discussed in chapter 3. *Approach* combines Lloyd's epistemological scale and Coleman's methodological spectrum, with distinction made between the statistical, deductive, and instrumental method of the economist, and the qualitative and realist analysis of the historian. *Interpretation* incorporates Coleman's internalist/externalist spectrum, as well as discussing the use of theoretical frameworks. While 'approach' and 'interpretation' are used here, both Lloyd and Coleman adopt other methods for classifying texts. Lloyd's ontology scale makes the distinction between individualism and structuralism. The vast majority of work analysed in this thesis is individualist, meaning this method of classification does not yield much explanatory power. Similarly, Coleman's distinction between 'epochal' and 'episodic' economic history largely depends on the research question of the scholar. It thus emerges through the discussion of 'interpretation'.

---

[63] These are Coleman, 'Historiography'; Jetson, 'Economic history'; Lloyd, 'Economic history and policy'; Lloyd, 'Analytical frameworks'; Schedvin, 'Midas and the merino'.
[64] See discussion of different traditions within intellectual history in chapter 2.

Other criteria are used to analyse the material in the *AEHR* over this period. Morgan and Shanahan have determined the main themes in the journal's output by using the *Journal of Economic Literature* (*JEL*) research codes. While these codes successfully highlight the changing interests and geographic reach of the journal, they do not capture the use of a common interpretive framework, or the bifurcation between internalist and externalist texts. Changes in methodology have been determined by measuring the numbers of tables and figures published in each article.[65] This is a highly simplified proxy for complex methodological phenomena.

Qualitative analysis has been chosen as the primary way to determine ideas in this community. This may perpetuate a subjective interpretation of the scholar's work. To address this, strict criteria have been used. This provides a detailed and rigorous analysis of ideas that is comparable with other work in intellectual history.

4.2.2. Citations

The qualitative discussion has been augmented with a quantitative analysis of citations. Citations are the most widely-used method for quantitatively analysing intellectual communities.[66] They are most often used to assess the impact of a text, author, journal, department, or university.[67] Citations are seen as an important measure of intellectual influence between authors texts, representing shared pieces of information that connect the citee and citer.[68] The Social Sciences Citation Index (SSCI) – a digital, open access resource for citation data from journal articles – is often used to construct these networks, with data for contemporary intellectual networks generally stored reliably.[69] However, the SSCI is not available for non-digitised works such as books and historical texts. The importance of these texts for the Australian economic history field necessitates manual

[65] Morgan and Shanahan, 'Supply of economic history'.
[66] Ding, 'Scientific collaboration'; Euske, et al., 'Management control'; Gondal, 'Knowledge production'; C. Hsueh and C. Wang, 'The use of social network analysis in knowledge diffusion research from patent data', *2009 International Conference on Advances in Social Network Analysis and Mining*, 2009; McWilliams, et al., 'Who is talking to whom?'; Pieters and Baumgartner, 'Who talks to whom'; Siler, 'Citation choice'; Sorenson, et al., 'Complexity'; Studer and Chubin, *Cancer mission*; Wang, et al., 'Knowledge networks'; White and McCain, 'Visualising the discipline'.
[67] Euske, et al., 'Management control'; T. C. Judge, DM, A. Colbert and S. Rynes, 'What causes a management article to be cited: Article, author, or journal?', *Academy of Management Journal*, 50, 3, 2007; G. Salancik, 'An index of subgroup influence in dependency networks', *Adminstrative Science Quarterly*, 31, 1, 1986.
[68] Kaplan, 'Citation behavior'; McWilliams, et al., 'Who is talking to whom?'; Sharplin and Mabry, 'An alternative ranking'; Siler, 'Citation choice'; Small, 'Concept symbols'.
[69] Euske, et al., 'Management control'; McWilliams, et al., 'Who is talking to whom?'; Pieters and Baumgartner, 'Who talks to whom'.

coding of citations. Although this is a laborious method of data collection, it improves the representativeness of the analysis by including books, book chapters and un-digitised articles. The citation index includes over 20,000 individually recorded pieces of information, and thus human error may have affected its accuracy. However, this margin is likely to be fairly low.

Citations are analysed in part two and part three of this thesis. The number of citations in each text has been recorded, showing variations in the extent to which each author draws on others. Each citation is counted, with a few caveats. For in-text citations, if the same author is cited twice within the same paragraph, this is treated as one citation. If two texts by the same author are cited in the same paragraph, this is also treated as one citation. For footnotes, the same rule applies – if there are two citations of the same author in one footnote, this is treated as one citation. If there are multiple works by the same author cited in a single footnote, this is also given a score of one. Citations of primary sources (for example correspondence or historical reports) are not recorded, as the analysis is focussed on the diffusion of ideas among secondary sources. If a text cites a co-authored work, a score of one is given to each of the co-authors. Similarly, if a co-authored work cites a text, it is recorded as one citation from each of the co-authors.

While citation analysis is widely used to study intellectual networks, it has been criticised for failing to capture other important sociological forces that affect the diffusion of knowledge.[70] Citations don't offer any insight into the author's perceptions of the papers they have cited, and scholars may have a high level of similarity through disagreement about approach or interpretation.[71] The prevalence of cronyism and other reputation-making activities is also a relevant issue, with authors tending to disproportionately cite their friends and colleagues.[72] Another source of bias may be the Matthew Effect, where prominent individuals are cited with higher relative frequency, simply because they are seen as important.[73] Finally, the importance of quantitative data in economic history means that citations in this field may favour those who establish the primary data sources.

---

[70] McWilliams, et al., 'Who is talking to whom?'.
[71] Leydesdorff and Amsterdamska, 'Citation analysis'; M. MacRoberts and B. MacRoberts, 'Problems of citation analysis', *Scientometrics*, 36, 3, 1996; Phelan, 'Citation analysis'; Sula, 'Visualizing social connections'.
[72] Cozzens, 'Measure of science'; Crane, *Invisible colleges*; Gilbert, 'Referencing as persuasion'; Gondal, 'Knowledge production'; Kaplan, 'Citation behavior'; Kostoff, 'Citation analysis'; Phelan, 'Citation analysis'.
[73] Merton, 'Matthew effect'.

Prominence for scholars such as Coghlan and Butlin, who were renowned for establishing the 'quantitative infrastructure' of the field, may simply reflect a reliance on their data.[74]

4.2.3. Analysing citation networks

With approximately 4,000 nodes, visualising the citation networks is not very efficacious. The maps are dense and complicated, and they have very little explanatory power. As such, quantitative analysis of the citation network, based on connections between authors, is the primary method used here. *Cohesion* metrics have been used to suggest some overall trends in citations, and to compare the networks over time. *Average degree* is a normalised measure of the number of citations per node. *Density* indicates the number of ties held as a proportion of the number of possible ties. An expanding literature for scholars to draw on would be expected to increase average degree, and decrease citation density over time.

Centrality metrics have been used to indicate individual prominence in the network. Citations indicate a one-way transfer of ideas. The centrality metrics thus separate into *in-* and *out-* scores. This distinguishes between actors who were central because they were cited frequently, and actors who were central because they cited others frequently. *In-degree* measures the number of citations the node received, and *out-degree* measures the number of authors the node cited. A high *in-degree* score indicates prominence, as influential scholars are generally cited by a wider group. A high *out-degree* score suggests that the node was the culmination of published work for the community. A later entrant into a group may have a high *out-degree* score, as they would tend to widely cite the established literature.

Bonacich power indicates prominence due to dependence of others on the actor for ideas or connections. This distinguishes between *in-* and *out-* scores. A high *in-bonacich power* indicates that the actor was cited by otherwise disconnected authors, and a high *out-bonacich power* score suggests the scholar cited otherwise disconnected authors. The balance between *in-* and *out-* measures may change over the course of a career, with the scholar citing established literature in early pieces, but then becoming highly cited as their contribution to the field grows. *Betweenness* makes no distinction between *in-* and *out-* connections, with a higher *betweenness* score simply indicating that a node formed the path between otherwise disconnected groups. The author's work may have been a unifying element for the community, or the author themselves may have brought together

[74] See chapter 7 and 9 for a discussion of this.

a lot of otherwise disconnected literature in their work. These metrics have been used in chapters 7 and 9 to indicate the relative influence of authors in this community.

Citation similarity has also been used to determine intellectual trends in this community. Citations are assumed to represent shared pieces of knowledge between authors and texts, and so citation similarity indicates the extent to which authors drew on similar literature. This may be associated with a shared approach or interpretation. Citation similarity is the key method for determining intellectual trends for contemporary knowledge domains.[75] There are generally three methods for determining 'similarity'. *Co-citation analysis* measures similarity between two texts based on the degree to which they are cited together by others.[76] *Bibliographic coupling* deems two texts similar if they reference common works. *Direct citations* measure a link between texts only if they cite one another.[77] Bibliographic coupling is used here, with similarity between authors determined by their common citations (including to each other's work). The primary research themes for this component of the thesis – determining similarity between authors based on incorporating common pieces of knowledge – makes bibliographic coupling a close conceptual fit for the analysis. In *UCINET*, Pearson correlations, calculated by rows, are used.[78] Scores vary between -1 (meaning the two actors have exactly the opposite ties), to 0 (meaning there is no association), to +1 (meaning the two actors have exactly the same citations). Citation similarity is an imperfect measure of intellectual trends for Australia's economic history community. While it does reveal some of the qualitative and social groupings, there are a number of important omissions.[79] A shared methodology or perspective may not be the sort of thing that would lead to common citations. Citations may also indicate social or positioning functions, and disagreement

[75] White and McCain, 'Visualising the discipline'; S. P. Nerur, A. A. Rasheed and V. Natarajan, 'The intellectual structure of the strategic management field: An author co-citation analysis', *Strategic Management Journal*, 29, 3, 2008; K. W. Boyack and R. Klavans, 'Co-citation analysis, bibliographic coupling, and direct citation: Which citation approach represents the research front most accurately?', *Journal of the American Society for Information Science and Technology*, 61, 12, 2010; Euske, et al., 'Management control'; Ding, 'Scientific collaboration'; McWilliams, et al., 'Who is talking to whom?'; Pieters and Baumgartner, 'Who talks to whom'.
[76] White and McCain, 'Visualising the discipline'; Nerur, et al., 'Strategic management field'.
[77] For a description and critique of these methods, see Boyack and Klavans, 'Co-citation analysis'.
[78] This is the most common method of determining similarity in *UCINET* networks, see Hanneman and Riddle, *Social network methods*. The measure is calculated by rows because each of the ties in the network is set as a row in the citation index.
[79] See the discussion of the knowledge network in chapters 7 and 9.

between scholars.[80] Citation analysis is thus used cautiously, and is verified and complemented by qualitative analysis, oral history, and social networks.

4.3. Conclusions

This chapter has outlined the methods used to examine Australia's economic history field in the post-WWII period. A range of qualitative and quantitative techniques are deployed to analyse the ways in which social and intellectual elements affected the development of this scholarly community. Each source is intended to compliment the others, with a more complete picture of the community emerging from the combination of techniques. The use of social network analysis is a particularly innovative technique for the study of intellectual communities. This quantitatively and visually analyses social interactions between scholars. These maps are complemented by oral history sources, which provide additional details about the nature of institutions and collaborations, and the effect these ties may have had on ideas in the group. The qualitative analysis of texts is used to examine the knowledge network. This classifies texts based on 'approach' and 'interpretation'. Citation analysis has recorded the pieces of literature included in texts. This offers a quantitative assessment of intellectual trends, determining individual prominence, overall citation trends, and similarity between authors.

Each methodology used in this thesis has limitations. Oral history and qualitative analysis of texts may be subjective, with the current author, and the interview participants, imposing their own judgements on the analysis. Although the social networks and the citation analysis are more objective and verifiable, they are reductionist by assuming a uniform 'effect' from ties, and disregarding the nuance of relationships and intellectual influence in a community. Combining qualitative, quantitative, and visual techniques allows for verification between different sources, and the minimisation of bias in any one particular technique. It is through a range of methodologies, and an integrated understanding of the social and knowledge networks, that the development of Australia's economic history community is best understood.

---

[80] Cozzens, 'Measure of science'; Crane, *Invisible colleges*; Gilbert, 'Referencing as persuasion'; Gondal, 'Knowledge production'; Kaplan, 'Citation behavior'; Kostoff, 'Citation analysis'; Phelan, 'Citation analysis'.

5. The institutional and intellectual foundations of Australian economic history

The development of Australia's economic history community in the post-WWII decades is embedded within its long-term intellectual and institutional context. This chapter outlines the development of the modern university, and economic history's expansion as a domain of knowledge. The field's context in the post-WWII decades is also considered, including developments in Australian higher education, and the experience of the economic history field in other countries. This overlaps with the period under examination in the empirical analysis, providing important background for the development of Australian economic history as a mature social and intellectual community.

5.1. Long term

5.1.1. Economic history in its infancy

Although universities have existed since the medieval period, economic history did not emerge as a subject of study until the eighteenth century. At this time, universities transformed from elite enclaves of learning to research-led institutions. Laboratories, seminars, and doctoral theses became more prevalent, assisting the growth of different fields of research.[1] Within these changes to early modern universities, economic history has its intellectual origins. Although early political economists had used historical data, the first specification of economic-historical analysis was through the German Historical School. Emerging as a tradition within the economics discipline in the nineteenth century, the Historical School highlighted the contribution of history to economic analysis.[2] Adherents argued that rather than using *a priori* economic theory, the source of knowledge about the economy was through historical and empirical methods.[3] Gustav

[1] Universities in the eighteenth century were particularly influenced by the 'German model' championed by education official Wilhelm von Humboldt. Based on the ideals of freedom in teaching and learning, students were treated as independent thinkers and researchers, with professors supervising and assisting rather than instructing. See H. Röhrs, 'The classical idea of the university', in Röhrs and Hess, ed., *Tradition and reform of the University under an international perspective*, Verlag: Peter Lang, 1987.
[2] Harte, ed. *Economic history*; J.-O. Hesse, 'The legacy of German economic history: Archetypes and global diffusion', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; H. Van Der Wee, 'Economic history: Its past, present and future', *European Review*, 15, 01, 2007.
[3] Boldizzoni, *Poverty of clio*; Van Der Wee, 'Economic history'.

Schmoller was the most prolific and well-known advocate of the German Historical School, and he engaged in a lively debate with Carl Menger of the Austrian school in the mid to late nineteenth century.[4] This highly-publicised dispute between the deductive Austrian school, and the inductive Historical School is known as the *Methodenstreit*.[5]

In Britain, though work in economic history existed, until the late nineteenth century there was insufficient volume for it to be classified as a 'field'.[6] There were disputes similar to the *Methodenstreit* in Britain, between economic history and the deductive approach of the Classical school of economics.[7] Economic history in the US also emerged in the late nineteenth century. The subject in both Britain and the US was influenced by the German Historical School through William J. Ashley, one of economic history's earliest proponents.[8] Ashley was a prominent student of Schmoller's, and helped diffuse the Historical School's methodology to the economic history community in the English-speaking world through positions at Oxford, Toronto, Harvard and Birmingham.

In Britain, engagement with the German Historical School, and the *Methodenstreit*, gave economic history important institutional space and recognition as an independent academic field.[9] In the US, though there was adequate opportunity and interest in the subject, a specialist field did not emerge at this time. This was simply due to the enthusiasm for the subject, with the history discipline taking for granted the significance of economic forces, and economists already including historical dimensions in their teaching and research.[10]

The Marxist school of socio-economic analysis also contributed to the early economic history field. The approach, first specified by German philosophers Karl Marx and Friedrich Engels in the nineteenth century, integrated economic and socio-political inquiry to critique the development of capitalism and the role of class relations and societal conflict in human history. From these foundations, the Marxist school has maintained two central tenets: the analysis of modes of production, and a dialectical materialist view of

---

[4] The Austrian School is characterised by a *priori* and a deductive approach to economics.
[5] M. Louzek, 'The battle of methods in economics: The classical Methodenstreit - Menger vs. Schmoller', *American Journal of Economics and Sociology*, 70, 2, 2011.
[6] Harte, ed. *Economic history*.
[7] Hudson, 'Economic history in Britain'.
[8] Harte, ed. *Economic history*; Lyons*, et al.*, ed. *Reflections*.
[9] Coats, 'Disciplinary self-examination'; Harte, ed. *Economic history*.
[10] Coats, 'Disciplinary self-examination'.

social transformation.[11] The Marxist school is fundamentally interested in the causes of changes to modes of production, and the motivating forces for this change over time.[12]

By the end of the nineteenth century, the early intellectual development of economic history combined with some healthy contextual conditions to increase the subject's success within universities. Rapid industrialisation throughout the eighteenth and nineteenth centuries, and the economic success of many nations in Europe and the US, meant there was considerable interest in the historical context in which these changes took place.[13] The result was, even before WWI, increasing numbers of students and scholars in economic history, and a greater volume of research.

5.1.2. Economic history in the early twentieth century

The early twentieth century was characterised by increasing interest in economic history, a greater level of institutional surety, and the development of some distinctive intellectual traditions. In Britain, the expansion of the subject at this time culminated in the foundation of the Economic History Society in 1926, the first issue of the *Economic History Review* in 1927, and the first Chair in the subject established at Cambridge in 1928.[14] Research focussed on particular industries or firms, with minimal use of economic theory. The subject became characterised by a "certain English empiricism", allowing the data to lead the analysis.[15]

The US economic history field remained 'shapeless' in the early twentieth century, with no particularly prominent schools of thought.[16] The most significant development was in the 1930s, when Simon Kuznets first developed his national income accounting techniques.[17] Kuznets was a long-time member of staff at the National Bureau of Economic Research (NBER), a non-university institution focussed on statistical and quantitative research.[18] Kuznets took charge of the NBER's work on US national income accounts in 1931.

---

[11] J. S. Cohen, 'The achievements of economic history: The Marxist school', *The Journal of Economic History*, 38, 1, 1978.
[12] Cohen, 'The Marxist school'.
[13] Van Der Wee, 'Economic history'.
[14] Hudson, 'Economic history in Britain'.
[15] Harte, ed. *Economic history*, p.xxvii.
[16] Coats, 'Disciplinary self-examination', p.11; Lyons*, et al.*, ed. *Reflections*.
[17] Lamoreaux, 'Beyond the old and the new'.
[18] Lyons*, et al.*, ed. *Reflections*.

Although Kuznets was not the first to attempt this, his work was so comprehensive and detailed that it soon set the standard for the field.[19]

Kuznet's built estimates of income created by each industry.[20] His contribution was limited by important omissions, missing data, the inherent bias of some estimates, and the failure to convert estimates to constant prices.[21] Nevertheless these national income estimates were quickly adopted, and the approach to calculation was used readily elsewhere. Kuznets' approach sparked the collection of national income accounts in a number of other countries, including Australia. Kuznets was an important implicit influence on the development of Noel Butlin's national income estimates in the 1950s.[22] For the US, advances in national income accounting meant that the interwar period concluded with an increased use of statistics and an awareness of time-linked, historical data. This was a prologue for the 'scientific development' of economic history that occurred in the US in the 1960s.[23]

A distinctive interpretation for Canadian economic history also emerged in the interwar period. The staples thesis, dominant in Canadian economic history from the 1920s to the 1960s, can be traced to the separate, concurrent efforts of William A. Mackintosh (Queens University) and Harold Innis (University of Toronto). Mackintosh and Innis argued that economic development was due to the export of a series of key commodities to industrialised 'Mother countries'.[24] External demand for primary exports set the pace of growth, but local production set the pattern of growth and the distribution of income.[25] While staples thesis was a unifying theme of broad application to Canada's history, the lack of explicit theory limited its empirical use and application to other contexts.[26]

---

[19] C. S. Carson, 'The history of the United States national income and product accounts: The development of an analytical tool', *Review of Income and Wealth*, 21, 2, 1975.
[20] Carson, 'An analytical tool'.
[21] Carson, 'An analytical tool'; Lyons, et al., ed. *Reflections*.
[22] See the discussion of the knowledge network in chapter 7.
[23] Coats, 'The Historical Context'; C. Godden, 'In praise of Clio: Recent reflections on the study of economic history', *Œconomia*, 3, 4, 2013; Lyons, et al., ed. *Reflections*; Lamoreaux, 'Beyond the old and the new'.
[24] For Canada, fur, cod fishing, timber, wheat and minerals were exported firstly to France, then Britain, then the US.
[25] D. McCalla, 'Making a country (and an economy): Economic history in Canada', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; M. Watkins and H. Grant, *Canadian economic history: Classic and contemporary approaches*, Ottawa: Carleton University Press, 1993.
[26] M. Watkins, 'A staple theory of economic growth', *Canadian Journal of Economics and Political Science*, 29, 1, 1963; Watkins and Grant, *Canadian economic history*.

Antipodean applications of the Canadian staples thesis was a key debate for Australian economic historians in the 1960s.[27]

5.1.3. Australian economic history in the early twentieth century

Australian economic history emerged as a distinctive subject in the early twentieth century.[28] Though William Pember Reeves showed concern for social, political and economic historical matters,[29] Timothy Coghlan's efforts are largely seen as the start of Australian economic history as a separate intellectual tradition.[30] Coghlan was a pioneer of national income estimation.[31] His efforts as the NSW statistician from 1886 culminated in *Labour and industry* which, in 2,449 pages, provides a "pullulating Victorian panorama in words and numbers that seemingly capture every person, law and landmark".[32] Coghlan presented primary quantitative material, linked with a narrative. He had no model of growth, though he implicitly adopted 'progress' as a theme to organise the statistical material.[33] Coghlan showed an interest in social class differences, political economy, and a Whiggish concern for social progress.[34] Such theoretical frameworks were not explicitly elucidated though, with Coghlan allowing the facts to speak for themselves. This inductive approach to economic history, and Coghlan's ambitious collection of estimates, was a direct influence on Noel Butlin and the orthodox school in the 1950s.[35]

Within the wider tradition of national income accounting, there is recognition that Coghlan's were the first modern estimates to record and interpret the three aspects of

---

[27] See the discussion of the knowledge network in chapter 7.
[28] There had been interest in Australia's material development prior throughout the nineteenth century, though before Federation it was seen as so intimately tied with Britain's progress that it can arguably not be classified as an 'Australian' approach. See Coleman, 'Historiography'.
[29] W. P. Reeves, *State experiments in Australia & New Zealand*, London: G. Richards, 1902.
[30] C. Lloyd, 'Analytical frameworks of Australia's economic history', in Ville and Withers, ed., *The Cambridge Economic History of Australia*, Melbourne: Cambridge University Press, 2015, p.54 argues that Reeves' work can be read as the "first modern work of analytical economic history". Coghlan is attributed as the first work for the field by most other scholars: Coleman, 'Historiography'; Jetson, 'Economic history'; Schedvin, 'Midas and the merino'; Sinclair, 'Economic history'; Meredith and Oxley, 'Australian economic history'.
[31] H. W. Arndt, 'A pioneer of national income estimates', *Economic Journal*, 59, 236, 1949; S. Holton, 'T.A. Coghlan's labour and industry in Australia: An enigma in Australian historiography', *Historical Studies*, 22, 88, 1987; Lloyd, 'Economic history and policy'; Schedvin, 'Midas and the merino'.
[32] Coleman, 'Historiography', p.12. See T. Coghlan, *Labour and industry in Australia*, London: Oxford University Press, 1918.
[33] Coleman, 'Historiography'; Lloyd, 'Economic history and policy'; Schedvin, 'Midas and the merino'.
[34] Holton, 'An enigma'; Lloyd, 'Economic history and policy'.
[35] See discussion of the knowledge network in chapter 7.

national income - production, distribution and disposition.[36] Despite this, *Labour and industry* was not commercially successful – Coghlan's work had a dense, dry prose style and he insisted that references and footnotes were not necessary.[37] This formed the basis of critiques of his work by the post-WWII community. Despite this, Coghlan substantially contributed to an understanding of Australia's industrial structure, capital-output ratios and per capita income. As the first sustained quantitative account of Australia's material development, *Labour and industry* maintaining its status as one of the 'standard' Australian economic history texts throughout the rest of the twentieth century.[38]

Coghlan was a government employee, meaning his contributions to Australian economic history occurred outside the university system. At the time, the university sector was characterised by small teaching institutions, with very little research.[39] This began to change from the end of WWI, where student numbers increased through returned servicemen schemes and greater female participation. The sector also began emphasising research, particularly work geared towards Australia's military, industrial, and economic aims.[40] A national research body – the Council for Scientific and Industrial Research (CSIR) – was established in 1926, and in the 1930s the Australian government began funding a small amount of research in universities.

These developments led to greater presence of economic history research within the higher education sector. There was a smattering of isolated contributions to the subject in the interwar period, most of which fell within the 'analytical school'.[41] The most enduring of these were Edward Shann's *Economic history*, and Brian Fitzpatrick's *British imperialism and Australia* and *The British empire in Australia*.[42] Shann's work was the first thorough history of economic events, actions and processes in Australia, which he wrote with a

---

[36] J. W. Kendrick, 'The historical development of national-income accounts', *History of Political Economy*, 2, 2, 1970, p.304; Arndt, 'A pioneer'; Schedvin, 'Midas and the merino'.
[37] Coghlan famously justified this by arguing that "For the statistics I am my own authority", p.v.
[38] In the 50s, 60s, 70s and 80s, Coghlan's work was cited by a range of scholars frequently. See citation analysis in chapters 7 and 9.
[39] D. Anderson and E. Eaton, 'Part 1: Post-war reconstruction and expansion 1940 - 1965', *Higher Education Research and Development*, 1, 1, 1982; H. Forsyth, *A history of the modern Australian university*, Sydney: University of New South Wales Press, 2014. Each of the six states had a university by 1911.
[40] Forsyth, *Modern Australian university*.
[41] Lloyd, 'Analytical frameworks', pp.53-7.
[42] E. Shann, *An economic history of Australia*, Melbourne: Cambridge University Press, 1930; B. Fitzpatrick, *British imperialism and Australia*, Sydney: Sydney University Press, 1939; B. Fitzpatrick, *The British empire in Australia*, Melbourne: Melbourne University Press, 1941.

strongly pro-imperial and pro-free market perspective.[43] Shann reported on the triumph of the exchange economy over the communism of government food production in the early days of Botany Bay, focussing on the benefits of rural industries.[44] In the 1950s and 1960s, Shann's contribution was influential as an undergraduate textbook, and was cited widely as a key text of Australian economic history. However, his tendency for dramatic generalisations and the frequent 'shallowness' of the account made his contribution somewhat unreliable.[45]

Fitzpatrick, while still employing a narrative-based approach, analysed economic change from the perspective of the division of labour, class struggles, and conflict between imperial policy and the interests of the Australian State. His work aimed not to explain economic growth in terms of 'progress', rather he accounted for changes in the structures of social and economic development, and the distribution of wealth and power.[46] His narrative was more detailed than Shann's which gave it greater credence in the post-WWII economic history community. However, some argued that this reliability was uneven, with the more recent past treated particularly poorly.[47] The works of Shann and Fitzpatrick both included a strong underlying theme, a skilled command of the written word, and each added 'spice' to Coghlan's more sober treatment of Australian economic history.[48]

Other interwar contributions included Herbert Heaton's generalist *Modern economic history* and Frederic Benham's *The prosperity of Australia*.[49] Roland Wilson and G. L. Wood separately explored the largely unstable relationship between capital imports, terms of trade, and the business cycle in Australia.[50] Robert Madgwick, Frederic Eggleston, Sir Keith Hancock, Meredith Atkinson, Clarence Northcott, Stephen Roberts and Garnet Portus rounded out the interwar literature.[51]

---

[43] Coleman, 'Historiography'; Lloyd, 'Economic history and policy'; Schedvin, 'Midas and the merino'; Sinclair, 'Economic history'.
[44] Coleman, 'Historiography'.
[45] Schedvin, 'Midas and the merino'.
[46] Lloyd, 'Economic history and policy'; Lloyd, 'Analytical frameworks'; Schedvin, 'Midas and the merino'; Sinclair, 'Economic history'.
[47] S. J. Butlin, *Foundations of the Australian monetary system 1788-1851*, Melbourne: Melbourne University Press, 1953, preface; Schedvin, 'Midas and the merino', p.544.
[48] Sinclair, 'Economic history', p.245.
[49] H. Heaton, *Modern economic history with special reference to Australia*, Adelaide: WEA South Australia, 1922; F. Benham, *The prosperity of Australia: an economic analysis*, PS King, 1928
[50] R. Wilson, *Capital imports and the terms of trade*, Melbourne: Melbourne University Press, 1931; G. Wood, *Borrowing and business in Australia*, Oxford: Oxford University Press, 1930.
[51] Schedvin, 'Midas and the merino'; Coleman, 'Historiography'; Lloyd, 'Analytical frameworks'.

These "national storytellers" were unified by an emphasis on quantitative measures, a narrative presentation, and the inclusion of political and social elements in their analysis of Australia's economic history.[52] Attention was concentrated on the rural sector, and on the dependence of Australia on external forces. The approach of the analytical school was realist and structuralist, analysing events, individuals and government policy, and adopting the methodology and style of the history discipline.[53] Quantitative data were used, which reflected Coghlan's early statistical influence and the interest in national income accounting from Allan G. B. Fisher, Colin Clark and Simon Kuznets. Economic theory was not explicitly used, though the ideas of neoclassical economics permeated.[54] Political ideology formed the first major bifurcation between economic historians at this time. There was a contrast between market liberals such as Shann, and the more radical approach of Fitzpatrick. Although both argued against state intervention, it was on different grounds. Shann saw it as a hindrance to the enterprising and self-interested individual, and Fitzpatrick arguing that governments generally served only the interests of the privileged class.[55]

Analytical scholars were generally employed by universities, though the boundaries between university and government work was blurred. Indeed, many interwar economic historians spent time on advisory committees or in the public service. Within universities, Australian economic history was still in its infancy, lagging behind the development of the field elsewhere.[56] The first course in the subject was established at the University of Sydney in 1911, with others following at the Universities of Adelaide and Melbourne in 1920 and 1927 respectively.[57] Generally economic history was taught in faculties of economics or commerce, though the subject also had institutional ties with the history discipline. For instance, at the University of Adelaide, economic history was housed in a large Department of Economics and History.[58] At Melbourne, Douglas Copland emphasised the interdisciplinarity of economic history, arguing it was the "halfway house" between

---

[52] Coleman, 'Historiography', p.13.
[53] Lloyd, 'Analytical frameworks'.
[54] Lloyd, 'Analytical frameworks', p.57.
[55] Sinclair, 'Economic history', p.248.
[56] In the same period, the British economic history community established their society, journal, and university chairs in the subject.
[57] P. D. Groenewegen, *Educating for business, public service and the social sciences: A history of the Faculty of Economics at the University of Sydney 1920-1999*, Sydney: Sydney University Press, 2009; K. Anderson and B. O'Neil, *The building of economics at Adelaide, 1901 - 2001*, Adelaide: University of Adelaide Press, 2002; R. Williams, *Balanced growth: A history of the Department of Economics, University of Melbourne*, Melbourne: Australian Scholarly Publishing, 2009.
[58] Anderson and O'Neil, *Economics at Adelaide*; W. Prest, ed. *Pasts present: History at Australia's third university*, Kent Town: Wakefield Press, 2014.

the abstract and the concrete.[59] Economic history at this time was, in both approach and institutional space, a relatively happy marriage of both 'parent' disciplines.

During WWII, there was more explicit integration of national aims into the higher education sector.[60] Campus grounds and facilities were used for training, students enlisted in greater numbers, and academics played an important role in the public service.[61] Many Australian economic historians were removed from their university posts during WWII. At the University of Sydney, Syd Butlin temporarily left to work at the Department of War Organisation and Industry, Madgwick went into army education, and Mills worked for the Commonwealth Public Service.[62] This overlapped with the post-WWII economic history community, with some scholars holding wartime government positions before academic careers.[63]

5.2. Short term

5.2.1. The international scene

The end of WWII marked the beginning of major changes to the organisation of work, employment and society. Expansion of the higher education system in most industrialised nations in the post-WWII decades increased students, appointments and research in all disciplines and fields, including economic history. In the US, Sweden, Spain and Japan, the field developed close links with the economics discipline.[64] In other national contexts, economic historians were appointed to a mixture of economics and history groups, with continental Europe particularly emphasising the relationship between economic history and the broader humanities.[65] Separate departments of economic history manifested in

---

[59] Williams, *Balanced growth*, p.37.
[60] Forsyth, *Modern Australian university*; Anderson and Eaton, 'Post-war reconstruction'.
[61] Forsyth, *Modern Australian university*; S. Macintyre, *The poor relation*, Melbourne: Melbourne University Press, 2010.
[62] Groenewegen, *Educating for business*.
[63] Noel Butlin is a notable example, he was employed (with future ANU colleagues Swan and JG Crawford) at the Department of Postwar Reconstruction from 1942 – 1946.
[64] Lamoreaux, 'Beyond the old and the new'; K. Sugihara, 'Japanese economic history: Exploring diversity in development', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; Y. Hasselberg, 'Manufacturing the historic compromise: Swedish economic history and the triumph of the Swedish model', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015.
[65] Aerts and Bosma, 'Low countries'; Boje, 'Danish economic history'; J.-Y. Grenier, 'Economic history in France: A *Sonderweg*?', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; Hasselberg, 'Swedish economic history'

Britain, Australia and the Netherlands.[66] In India, Latin America and Japan on the other hand, expansion of the field contributed to the growth of professional organisations.[67] The post-WWII growth of economic history was thus a global phenomenon, which encouraged a number of distinctive intellectual traditions.

There was an expansion of research using national income accounting in the post-WWII period. The popularity of Keynesian economic analysis complemented the interest from economic historians in the long-term process of growth and development.[68] Kuznets extended his interwar efforts to develop historical national accounts for the US and Europe, and he was joined by similar work in France, the UK, Spain, Belgium, India, and elsewhere in the post-WWII decades.[69] Noel Butlin's efforts to construct historical national accounts for Australia was part of this international trend.[70]

In Britain in the 1950s, there was also the development of a more formal theoretical style of economic history that took cues from the economics discipline. Alec Cairncross, Brinley Thomas, Robin Matthews and others began using a 'quantitative-historical' approach, which included theoretical reasoning, economic models and the analysis of extensive quantitative information. The approach diffused to Australia's post-WWII economic history community, with Ernst Boehm influenced by the work of Matthews, and Alan Hall influenced by Cairncross.[71] These intellectual traditions fostered a closer relationship between economic history and the economics discipline. It was reflected in the first International Economic History Congress, held in Stockholm in 1960, with most sessions concerned with industrialisation, human capital and technological innovation.[72]

The Marxist school of socio-economic analysis directly influenced the economic history field in the 1950s and 1960s, through the debate in Britain about improvements to living

---

[66] Hudson, 'Economic history in Britain'; Aerts and Bosma, 'Low countries'; Coleman, *History and the economic past*; Pincus and Snooks, 'Editorial reflections'.
[67] Saito, 'A very brief history of Japan's economic and social history research'; P. Parthasarathi, 'The history of Indian economic history', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; Sugihara, 'Japanese economic history'; L. Bertola and J. R. Weber, 'Latin American economic history: Looking backwards for the future', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015.
[68] Van Der Wee, 'Economic history'.
[69] Aerts and Bosma, 'Low countries'; Hudson, 'Economic history in Britain'; I. Iriarte-Goni, 'Spanish economic history: Lights and shadows in a process of convergence', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; Lamoreaux, 'Beyond the old and the new'; Lyons, et al., ed. *Reflections*; Parthasarathi, 'Indian economic history'; Van Der Wee, 'Economic history'.
[70] See discussion of the development of the orthodox school in chapter 7.
[71] See chapters 6 and 7.
[72] Van Der Wee, 'Economic history'.

standards during the Industrial Revolution.[73] The optimists, including those who adopted the 'quantitative-historical' approach, argued that there had been gains to material well-being between 1770 and 1850. The pessimists, on the other hand, argued that even if there were improvements, quality of life was eroded by rapid urbanisation, pollution, and unhealthy living conditions.[74] By the 1970s, most mainstream economic historians were on the side of the optimists (including Australian/British economic historian Max Hartwell), while the pessimists were reinforced by 'new left' and Marxist historians such as Edward Thompson and Eric Hobsbawm. The standard of living debate had some impact on the Australian economic history community through Hartwell's chapter in Abbott and Nairn's edited volume, where he argued that perceptions of increasing poverty and crime prompted British transportation to Australia.[75] Beyond the standard of living debate, a more general Marxist framework was championed by Wells, and Buckley and Wheelwright in the 1970s and 1980s.[76]

The *Annales* School became a major intellectual trend in the post-WWII period. Named after the French journal, *Annales d'histoire économique et sociale*, established in 1929, the *Annales* approach emphasised long-term historical structures such as geography, material cultures and intellectual movements. By inductively marrying sources, an historical question and a contributory social science field, the *Annales* School aimed for a 'grand alliance' of the social sciences.[77] Fernand Braudel's *Mediterranean and the Mediterranean world* developed the idea of different modes of historical time. 'Structure' describes the glacier-like macrocosm of a society, including geography, climate and biology. 'Conjoncture' is the half- to full-century cycle where technology, prices, population growth and culture gradually transform the 'structure'. Finally, 'events' have merely surface effects, often noisy but with no real implications for the deeper currents of history.[78]

The *Annales* School was well-received in Italy, Poland, Spain, Latin America and Mexico from the 1950s onwards.[79] The reaction in Britain was generally hostile, except for Marxist

---

[73] Lyons, et al., ed. *Reflections*; R. Hilton, ed. *The transition from feudalism to capitalism*, London: New Left Books, 1976.
[74] E. Griffin, *A short history of the British industrial revolution*, New York: Palgrave, 2010.
[75] R. M. Hartwell, 'The British background', in Abbott and Nairn, ed., *Economic growth of Australia 1788-1821*, Melbourne: Melbourne University Press, 1969. See chapter 7.
[76] See discussion of the knowledge network in chapter 9.
[77] R. Forster, 'Achievements of the Annales school', *The Journal of Economic History*, 38, 1, 1978, p.74.
[78] Forster, 'The Annales school'.
[79] Forster, 'The Annales school'; S. K. Ficker, 'Mexico's economic history: Much more cliometrics and dependency theory', in Boldizzoni and Hudson, ed., *Routledge handbook of global economic history*, London: Routledge, 2015; Bertola and Weber, 'Latin American economic history'.

historians such as Eric Hobsbawn.[80] In the US, Germany, India, Russia, and Japan, the *Annales* approach had very little impact. In Australia, the integrated approach of Braudel and the *Annales* School was an inspiration for John McCarty and his colleagues at Monash University. This influenced the comparative approach that emerged in Australian economic history in the 1970s and 1980s.[81] Although the *Annales* School remained an important intellectual tradition, it never dominated mainstream economic history.

Greater emphasis on the mechanisms of growth, increasing quantification, and extended use of economic theory in economic history fuelled the 'cliometrics revolution'.[82] In this approach, scholars used advanced statistical techniques and model building to study aspects of the economic past. Cliometrics is generally traced to a gathering of the US Economic History Association in Williamstown in 1957. Here, Alfred H. Conrad and John R. Meyer presented pioneering papers on the use of statistics and economic theory, and slavery in the ante-bellum south. Meyer has since recalled that while he and Conrad were, to their mind, merely extending their training in economics in a conventional way, they received a strong, polarised reaction from the Williamstown audience.[83] Younger practitioners were in favour of the approach that expanded their research horizons and increased their opportunity for professional advancement, but older practitioners were sceptical of the newer techniques.

The immediate success of cliometrics as an intellectual movement was facilitated by the US higher education sector at the time. Expansion of universities, and appointments in economic history, increased the level of intellectual debate and engagement with new ideas.[84] Purdue University, the site of the first cliometrics seminars in the 1960s, had no prior standing in the field, had good salaries and facilities, was removed from the established academic centres, and had an atmosphere of competition and intellectual excitement. This facilitated the "boldly innovative" cliometrics output in the 1960s.[85] Cliometrics developed to emphasise the use of economic theory, precise measurement, hypothesis testing and, often, a counterfactual approach to analysing history.[86]

---

[80] E. J. Hobsbawm, 'From social history to the history of society', *Daedalus*, 100, 1, 1971.
[81] See the discussion of the knowledge network in chapter 9.
[82] Coats, 'The Historical Context'; Godden, 'In praise of Clio'; Lyons, et al., ed. *Reflections*.
[83] Coats, 'The Historical Context', p.187.
[84] Coats, 'Disciplinary self-examination'; Lyons, et al., ed. *Reflections*.
[85] Coats, 'The Historical Context', p.197. See also Godden, 'In praise of Clio'; Lyons, et al., ed. *Reflections*; Rojas, 'Cliometrics'.
[86] Coats, 'The Historical Context'; Lyons, et al., ed. *Reflections*.

Cliometrics dominated the economic history field in the US in the post-WWII decades. It was also prominent in Canada, as scholars were dissatisfied with the interwar staples thesis as an explanation for economic development. Cliometrics inspired a revision of staples thesis in the 1960s, with Edward J. Chambers and Donald F. Gordon combining neoclassical theory, counterfactual reasoning, and econometric techniques to challenge much (and reinforce some) of the conventional wisdom about Canadian economic history.[87] Limited developments in Britain, such as the work by John Habakkuk and Max Hartwell in the 1960s, was also in a consciously cliometric vein.[88] In Europe, similarly, cliometrics had some influence, particularly within economics departments.[89]

While there was some diffusion of cliometrics to the international economic history community, it never dominated outside of North America. Cliometrics instead became the domain of economists concerned with historical processes. Those in Britain, as rivals to the US group, were particularly critical of cliometrics. Criticisms centred on the cliometricians' use of counterfactuals, the neglect of social and cultural factors, and the application of ahistorical economic theory.[90] There were concerns that the approach gave access only to those with the necessary expertise in econometrics, which was particularly incompatible with the broader approach to economic historians in Britain and Europe. The experience of economic historians in Canada somewhat justifies this concern, with the adoption of cliometrics in the 1960s meaning the field became "less accessible to a wide audience and less relevant to historians in general".[91]

There was some diffusion of cliometrics to the Australian economic history community, particularly in the 1970s and 1980s. Some of this was due to increased graduate training for Australian economic historians in the US. It was also due to US cliometricians appointed to ongoing positions at the ANU, Adelaide and UNSW. Visiting scholar programs, and collaborations with US scholars, also assisted the diffusion of this approach.[92] As in the

---

[87] See E. J. Chambers and D. F. Gordon, 'Primary products and economic growth: An empirical measurement', *The Journal of Political Economy*, 74, 4, 1966; W. Easterbrook and M. Watkins, *Approaches to Canadian economic history*, Toronto: McClelland and Stewart, 1967; Watkins and Grant, *Canadian economic history*; McCalla, 'Making a country'.
[88] Lyons*, et al.*, ed. *Reflections*.
[89] Van Der Wee, 'Economic history'.
[90] Mathias, 'Still living with the neighbours'; R. Perren, 'A personal view', in Hudson, ed., *Living economic and social history*, Glasgow: Economic History Society, 2001; Van Der Wee, 'Economic history'.
[91] Watkins and Grant, *Canadian economic history*, p.xii. See also H. G. J. Aitken, 'Myth and measurement: The Innis tradition in economic history', *Journal of Canadian Studies*, 12, 5, 1977; McCalla, 'Making a country'.
[92] See the discussion of co-location, PhD supervision, and collaboration in chapter 8.

US, cliometrics in Australia was polarising, dividing the ranks of economic historians throughout the 1980s.[93] While the approach did remain in the minority in Australian economic history, there was an overall closer integration with the economics discipline. The adoption of cliometrics in Australia was thus a part of a wider intellectual and professional orientation towards the economics discipline in the 1980s.

5.2.2. Economic history in postwar Australian higher education

Australia's higher education sector expanded, like other developed nations, in the post-WWII decades. Increases in funding, student numbers, and higher education institutions expanded the resources available to all disciplines and fields. The social sciences captured much of these effects, as those who had served on government advisory boards during WWII joined together to demand recognition and institutional support for their work.[94] The growth of economic history within universities was part of this trend, becoming a required subject in commerce or social science degrees throughout this period.[95]

In 1945 there was one university in each state.[96] From there, the post-WWII period represented the greatest educational expansion in Australia's history. Student numbers grew through government returned servicemen schemes, greater professionalisation of occupations, and the growing perception that tertiary education was necessary for social and economic advancement.[97] University and teacher's college enrolments doubled between 1945 and 1950, with this growth rate sustained throughout the next two decades.[98] Government attention on research, which began during the interwar period, also increased, with greater funding and the introduction of domestic PhD programs.[99] The establishment of the ANU in 1946 was a key component of the government's focus on research.[100] The ANU was a research-only institution at first (the only students were PhD scholars), and was entirely, and generously, funded by the Commonwealth government.

---

[93] Pincus and Snooks, 'Editorial reflections'.
[94] Macintyre, *The poor relation*.
[95] Schedvin, 'Economic history in Australian universities'.
[96] Universities of Sydney (est. 1850), Melbourne (1855), Adelaide (1874), Tasmania (1890), Queensland (1909), and Western Australia (1911).
[97] Anderson and Eaton, 'Post-war reconstruction'; Forsyth, *Modern Australian university*; S. Marginson, *Monash: remaking the university*, St Leonards: Allen and Unwin, 2000; Macintyre, *The poor relation*.
[98] Anderson and Eaton, 'Post-war reconstruction'.
[99] Forsyth, *Modern Australian university*; Marginson, *Monash*. Before this, PhD students tended to study in Britain.
[100] Anderson and Eaton, 'Post-war reconstruction'; Macintyre, *The poor relation*.

Growth of student numbers in the 1940s and 1950s increased the pressure on existing state universities, with greater teaching loads and the need to hire younger and more inexperienced staff. Additional teaching institutions were established at this time, including the NSW University of Technology (1949) and the Newcastle University College (1951). In 1957, the Commonwealth government's Murray Report recommended the establishment of a number of new universities, and a closer relationship between universities, public needs, and the government.[101] Monash University (1958), Wollongong University College (1961), Flinders University (1966), and La Trobe University (1967) were established following the Murray report. The ANU was amalgamated with the Canberra University College (CUC) in 1960, and the NSW University of Technology was transformed into the University of New South Wales (UNSW) in 1958. The 1950s and 1960s were the 'golden era' for higher education expansion.

For Australia's economic history community, this institutional expansion led to more scholars and space for the subject.[102] In the 1950s and 1960s, the numbers of economic historians expanded primarily at the ANU, with other groupings at the University of Sydney, the University of Melbourne, and Monash University. The establishment of newer universities meant there was some decentralisation of appointments in the 1970s and 1980s. Greater emphasis on research also meant a shift towards domestic graduate training. The ANU dominated PhD studies in economic history throughout the 1950s and 1960s, but this also decentralised in the latter decades to include students from Sydney, UNSW, Monash, Melbourne, and the University of Western Australia (UWA).[103]

Until 1960, there was only one department in economic history – at the University of Melbourne.[104] Elsewhere, appointments were made and students were trained within economics or commerce groups. In a small number of cases, the subject was institutionally connected to the humanities, such as the co-operation between the Economics and Arts faculties in the teaching of economic history at the University of Adelaide.[105] Separate departments in economic history emerged, for the most part, in the 1960s and early

[101] K. Murray, I. Ross, C. Morris, A. Reid and J. Richards, *Report of the Committee on Australian Universities, September 1957*, Canberra: Commonwealth Government,, 1957.
[102] The expansion of staff for economic history was comparable to parent disciplines in the 1960s and 1970s, performing better than these groups in the 1970s and 1980s. See chapters 6 and 8.
[103] See discussions of PhD supervision in chapters 6 and 8.
[104] This was established in 1945.
[105] Anderson and O'Neil, *Economics at Adelaide*.

1970s.[106] This was due to the expansion of personnel, intellectual successes, graduate training, and greater general professionalisation of the community. It was also part of general restructuring to accommodate the growth of universities, with economic history departments established around the same time as departments for other fields. The expansionary mood of the ANU supported Noel Butlin's petition for a separate department in the 1960s.[107] Groenewegen has argued that the size of the University of Sydney's Faculty of Economics was the primary reason for division into separate departments.[108] Similarly, Dingle has commented that size was a major factor leading to the division of Monash's Faculty of Economics and Political Science (ECOPS).[109] At Flinders, the economic history group was established independently from faculty restructures.[110] No separate departments were established at the Universities of Queensland, Adelaide or UWA. Instead, scholars were integrated into large economics groups.

The expansion of Australia's economic history field was thus inherently tied to the higher education environment. Greater emphasis on research, more students, and more funding was a favourable context in which to build an intellectual community. More personnel and graduate students fostered interactions between scholars, and allowed for joint activities and the diffusion of knowledge. The establishment of separate departments reinforced these ties. The institutional 'home' of economic history – within economics or business faculties – determined, to some degree, the connections economic historians had, and the intellectual characteristics of the group. These institutional trends are examined in more detail in chapters 6 and 8.

5.3. Conclusions

This chapter has outlined the long-term intellectual and institutional context of Australia's economic history field. The subject was initially conceived as a contribution to the economics discipline through the German Historical School. Since then, the field has had a number of co-existing (or competing) traditions that emphasise different aspects of the humanities and social sciences. The field came of age with modern universities in the early

---

[106] ANU Faculties (1961), the ANU Institute (1962), UNE (1965), Flinders (1968), Sydney (1969), UNSW (1970), and Monash (1972). La Trobe was exceptional, establishing a department in 1990.
[107] Foster, *Interview with Noel George Butlin*.
[108] Groenewegen, *Educating for business*, p.79.
[109] Dingle correspondence, 05.11.2015.
[110] See Flinders University Calendar 1969, p.18. The department had no staff until Seymour Broadbridge was appointed in 1970.

twentieth century. In Australia, there were only scattered practitioners throughout the interwar period, with the intellectual foundations provided by Coghlan and the 'analytical school'. In the post-WWII decades, most industrialised nations experienced rapid expansion of their higher education sector. The economic history field was able to access more resources, integrating itself as a major component of social science teaching and research. The Australian community was part of a global economic history field, integrating knowledge from Britain and North America. However, the tyranny of distance and dense local communities gave the Australian field a unique flavour. The development of the Australian economic history community is analysed more closely in parts 2 and 3 of this thesis.

Part two: The intellectual movement

The Australian economic history field in the 1950s and 1960s was an intellectual movement. The expansion of staff and institutional space, the development of social interactions, and greater production of research within a distinctive agenda, contributed to the visibility and independence of this scholarly community. Higher education expansion resulted in more staff and students in the field, with recruits tending to cluster in Canberra, Sydney and Melbourne at this time. The privileged position of the ANU meant that Canberra-based scholars were exposed to better research infrastructure and more joint activities than elsewhere. This contributed to the development of dense social ties at the ANU.

Collaboration followed, with ANU scholars forming co-authorship, edited works, and sub-authorship ties. These collaborations provided another focus through which scholars could communicate, and contributed to a convergence of intellectual characteristics amongst those in Canberra. Initially propagated by Noel Butlin, many ANU economic historians adopted the 'orthodox school' methodology in the 1950s and 1960s. The approach was characterised by an inductive, quantitative methodology and a greater integration of contemporary economic theory. Butlin's leadership at the ANU was key to the recruitment of scholars to this intellectual tradition. The dominance of the Canberra group in the national scene meant that the orthodox school became the primary intellectual current in Australian economic history prior to 1970.

Though Butlin's role in developing this approach was substantial, there were a number of instances where elements of this method emerged prior to the establishment of the ANU community, or on a separate trajectory. First, in the international scene, there was a convergence on national income accounting, the inductive use of data, and the incorporation of economic theory. The development of social links with economic historians in Britain and the US contributed to some diffusion of these ideas to Australia. Second, the enduring quantitative nature of Australian economic history contributed to a more general propensity for the orthodox methodology. Finally, Butlin's contribution was dependent on a generous higher education environment and the nature of the ANU. Butlin was thus partially a scholar that provided valuable intellectual infrastructure for the burgeoning economic history community, but was also someone in the right place at the right time.

Elsewhere, there were clustered co-location ties between scholars in Sydney and Melbourne. However, a lack of joint activities meant there were far fewer collaborative

relationships outside of Canberra. In the small number of instances where dense social ties did form, methodologies distinctive from the orthodox school emerged. These smaller trends were precursors to the spatial placement of ideas in the 1970s and 1980s.

The Australian economic history community was thus characterised by a more 'disciplinary' pattern of growth. Multidimensional social interactions and the establishment of various 'leaders' led to hierarchies, lines of communication, and methods of verification for the group. The dominance of a single institution in producing research and training scholars led to intellectual successes, and the establishment of a dominant methodology. The success of the field culminated in the transformation of the main journal – the *AEHR* – from a business archives report to a specialist economic history publication. Towards the end of this period, a professional society and conference were also established. By 1970, the field had secured institutional space, had fostered high levels of collaboration and research output, and had developed national professional structures.

Chapter 6 analyses the social interactions of economic historians during this period of growth. It outlines the process of the field's expansion, the nature of each local environment, and the motivations for, and effects of, collaboration. Social network analysis is used to map ties between scholars based on a common workplace, or collaboration on published works. Written sources and oral history interviews are used to illuminate the nature of interpersonal interactions and the intellectual effects of these joint activities.

Chapter 7 examines the development of the orthodox school. The knowledge network has been analysed qualitatively, differentiating between works of economic history based on *approach* and *interpretation*. There was a broad spectrum of practice between statistical, theoretical and deductive work, and the use of documentary sources to examine real instances of economic change. Interpretation generally diverged between internalist and externalist explanations for Australia's development. Oral history sources and citation analysis contribute to this discussion, providing insights into the intellectual connections and influences of scholars. Examining the interaction of the social and knowledge networks for Australian economic history highlights the dependence of intellectual traditions on social and institutional context.

6. The social network, 1950 – 1970

6.1. The expansion of economic history within universities

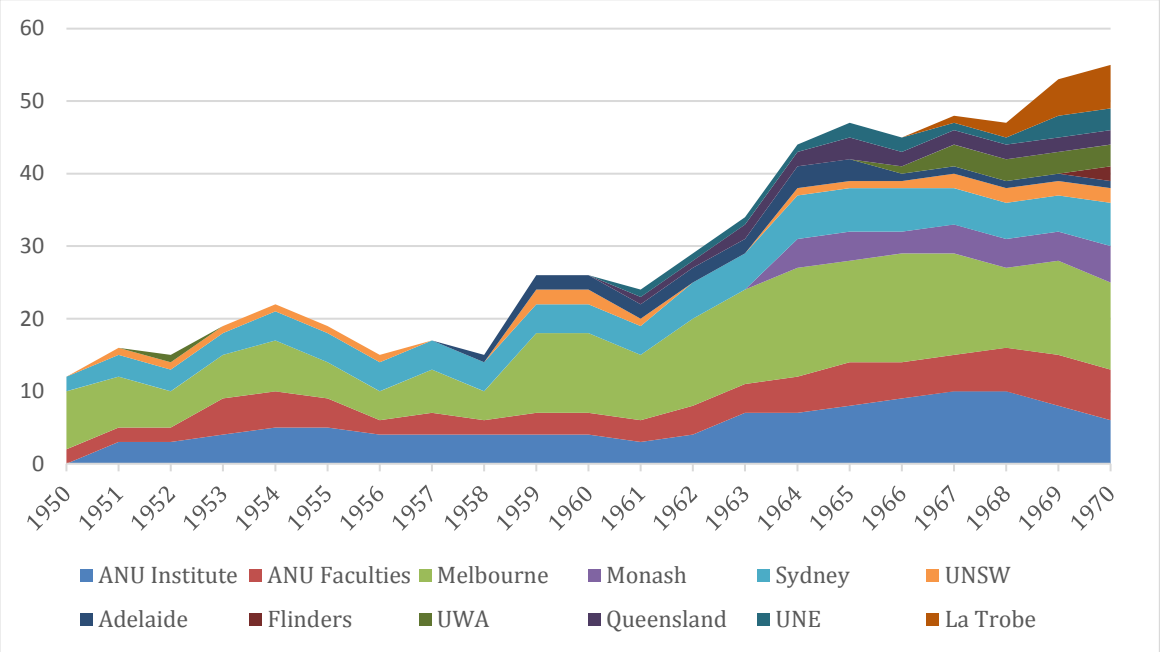
In the immediate post-WWII decades, Australian economic history developed as an intellectual movement. Greater interest in the social sciences fuelled this growth, with economic history expanding alongside disciplines and fields like economics, sociology, political science, and demography.[1] Institutional growth of economic history manifested as an expansion of appointments, students and courses in the subject, and then through the establishment of separate departments.[2]

6.1.1. Co-location network trends

Appointments in economic history expanded primarily at the ANU, the University of Sydney, the University of Melbourne, and Monash University in the 1950s and 1960s. Figure 6.1 shows the growth of staff in economic history. It indicates a substantial increase in the number of economic historians throughout this period, from 12 scholars in 1950, to 55 in 1970. The number of economic historians at the ANU increased from one to 16 throughout this period. Staff in the subject grew from two to six at the University of Sydney, and from eight to 15 at the University of Melbourne. Monash University was established in 1961, and there were five dedicated economic history appointments by 1970.[3]

[1] Macintyre, *The poor relation*; Ville and Wright, 'Renaissance and re-imagination'.
[2] Schedvin, 'Economic history in Australian universities', p.5. For discussion of this trend overseas, see Coleman, *History and the economic past*, pp.105-110; Hudson, 'Economic history in Britain'; Lamoreaux, 'Beyond the old and the new'.
[3] See Appendix B for the list of economic historians appointed to universities.

Figure 6.1: Expansion of appointments in economic history, 1950 - 1970



Note: Based on details of economic history appointments in Appendix B.

While this growth of staff was substantial, it was comparable to the growth of similar disciplines at this time. Table 6.1 contains average annual growth rates of staff for economic history, economics, history, and total university staff over this period. These figures suggest that in the 1950s, economic history expanded at a slower rate than its parent disciplines, though slightly faster than total university appointments. In the 1960s, the growth of economic history quickened slightly, to match the growth of economics and history. The expansion of economic history was thus not remarkable, but did keep pace with the development of related disciplines, particularly in the 1960s.

Table 6.1: Expansion of staff in economic history and related disciplines

	1950s	*1960s*
Economic history	11.7%	12.1%
Economics	16.8%	12.4%
History	21.4%	9.4%
Total university staff	10.5%	18.9%

Note: Average annual growth rate of staff in each group. Economic history figures are based data in Appendix B. Economics figures are based on P. Maxwell, 'The rise and fall (?) of economics in Australian universities', *Economic Papers: A journal of applied economics and policy*, 22, 1, 2003. These data are for 1956 – 1965 (quoted in the 1950s column here) and from 1966 – 1975 (quoted in the 1960s column). History discipline figures are based on S. Macintyre and A. Clark, *The history wars*, Melbourne: Melbourne University Publishing, 2004, p.26. These data are for 1954 – 1960 (quoted in the 1950s column) and for '1960 to the early 1970s' (quoted in the 1960s column). Total university staff figures are based on G. Hugo, 'Demographic Trends in Australia's Academic Workforce', *Journal of Higher Education Policy and Management*, 27, 3, 2005.

Figure 6.2 presents the co-location network for this community in the 1950s and 1960s. Ties between actors indicate that they worked at the same institution for at least one year. This network shows that the Canberra cluster was the largest and the most dense in this period. Figure 6.3 shows the Canberra cluster in more detail. It indicates that scholars such as Noel Butlin and Alan Barnard were embedded within the ANU group, but also had a small number of ties to scholars in Sydney. Others were intermediaries between the ANU and other clusters. Gus Sinclair, for instance, was located on the edge of the ANU group, forming a link to those in Melbourne. Figure 6.4 shows the Melbourne cluster. It distinguishes between two key 'sub-groups' – a very dense section of those who were staff members primarily in the 1950s (including Kathleen Fitzpatrick, Doug Hocking, and Alan Boxer), and a more sparse section including those who arrived in the 1960s (such as Boehm and Fogarty). Figure 6.5 shows the Sydney cluster. This reveals a much more sparse group, including key scholars such as Syd Butlin, Alan Birch, Jules Ginswick and Boris Schedvin.

Economic historians were appointed to other universities, though in much smaller numbers. By 1970, there were between two and five appointments a piece at the UNSW, Flinders University, University of Queensland, UWA, Adelaide, University of New England (UNE), and La Trobe. The expansion of staff was accompanied by a greater number of domestically-trained PhD students in the 1950s and 1960s. Most were trained at the ANU, including Barnard, Cain, Forster, Bambrick, Keating, Dowie, Sheridan, McLean, and Snooks. Jackson and Schedvin were trained at the University of Sydney, Merrett at Monash University, and Trace and Beever at the University of Melbourne.

Figure 6.2: Co-location network, 1950 - 1970

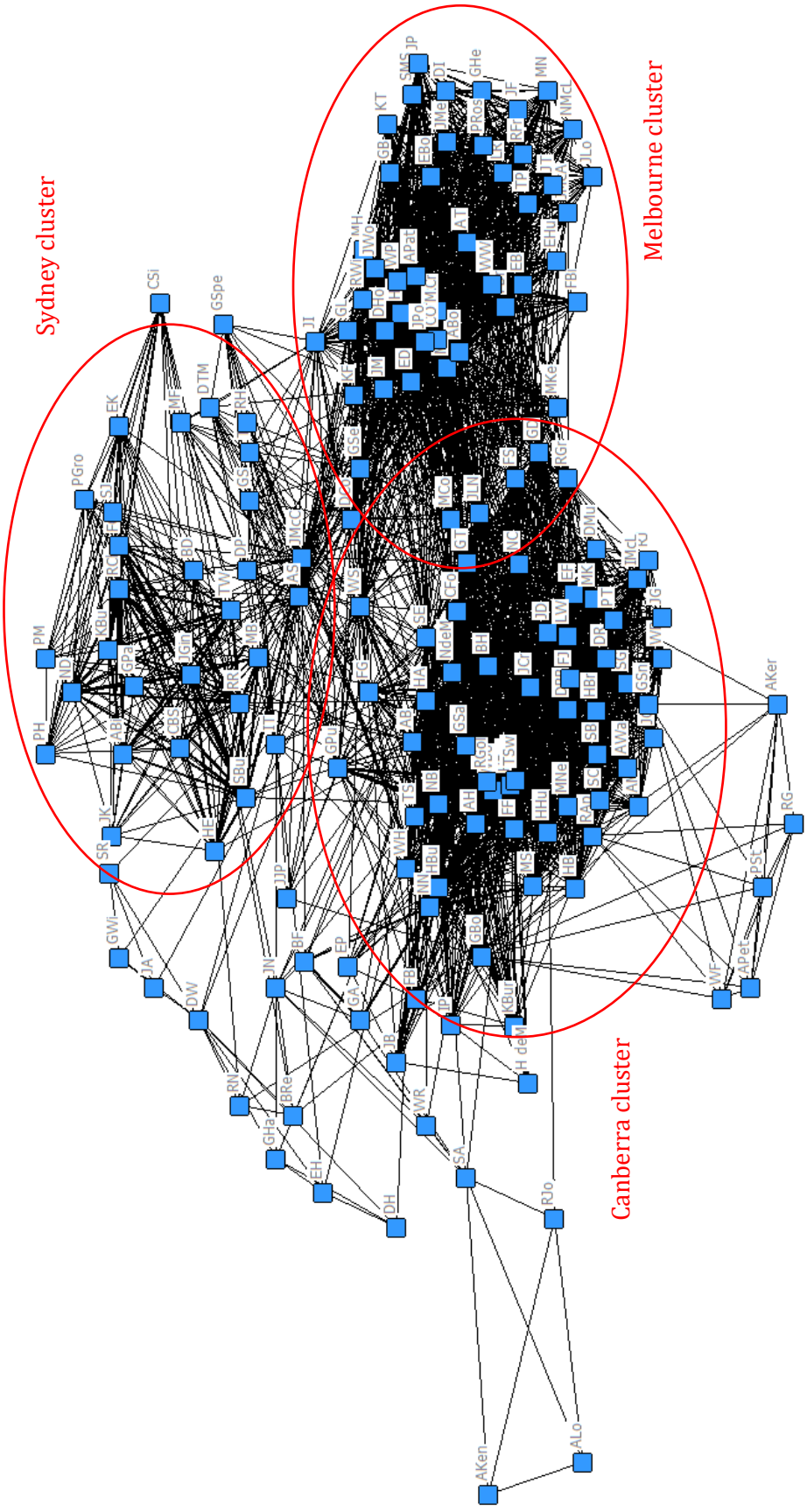


Figure 6.3: Co-location network, 1950 - 1970, Canberra cluster

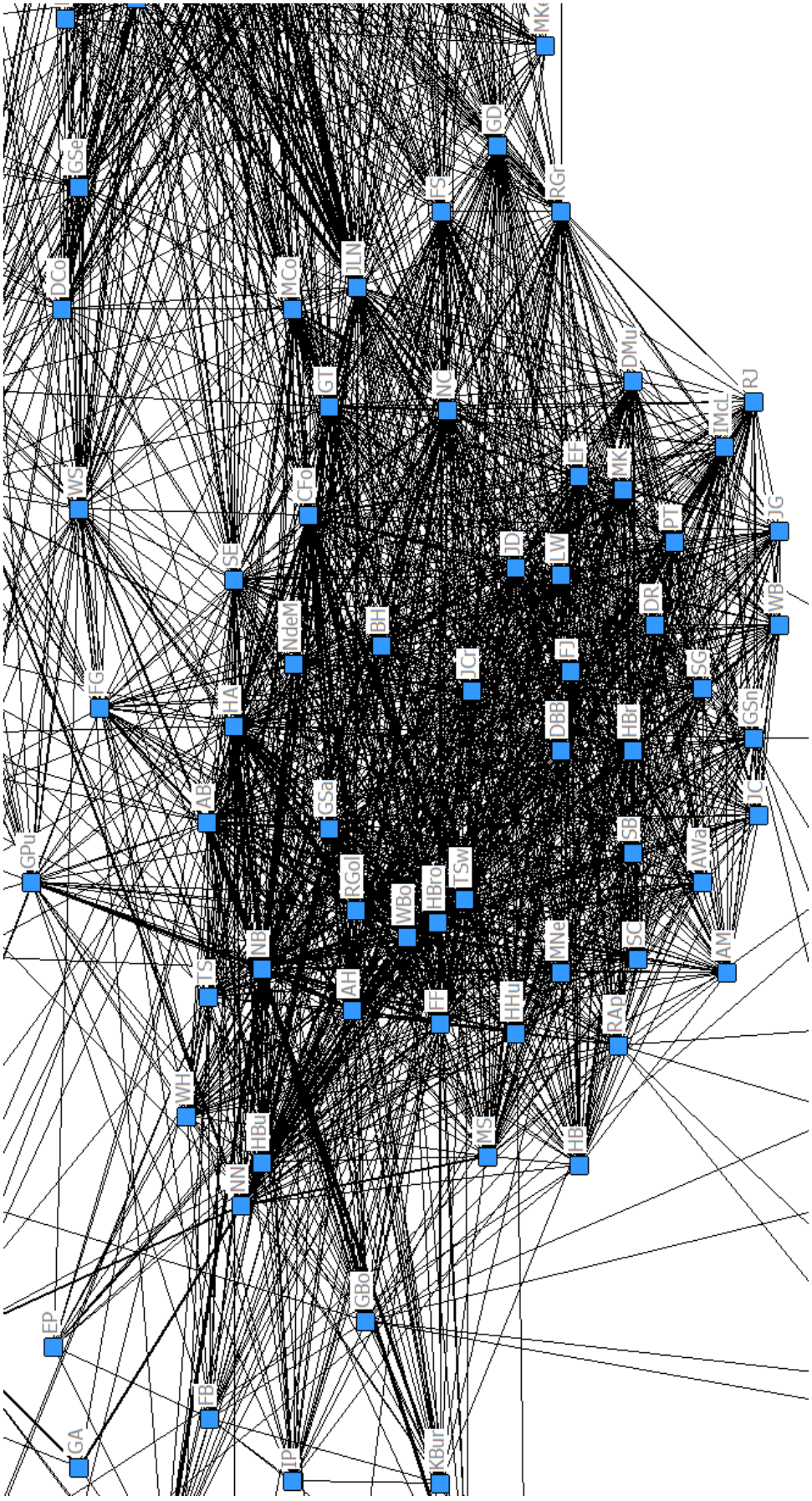


Figure 6.4: Co-location network, 1950 - 1970, Melbourne cluster

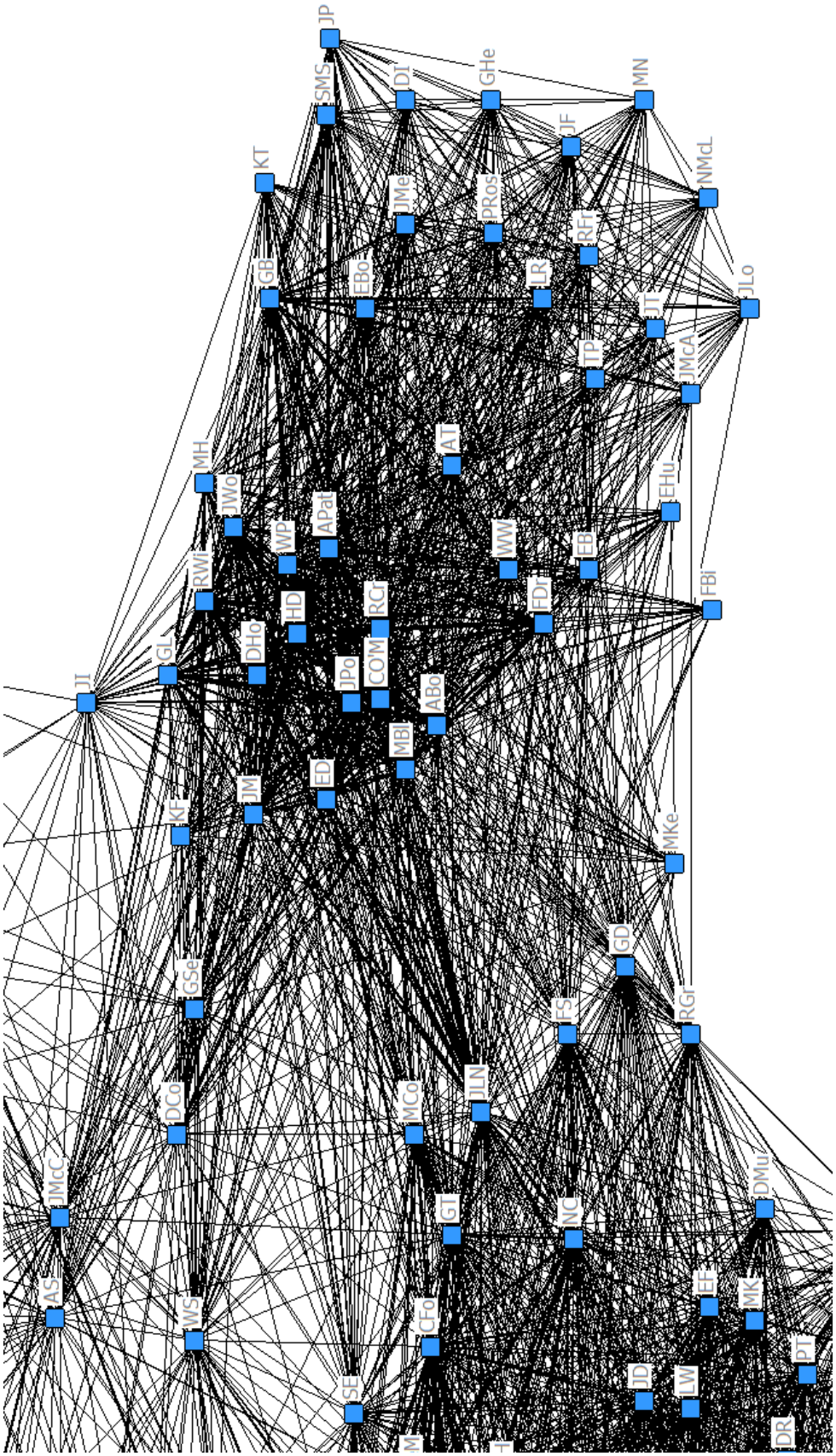
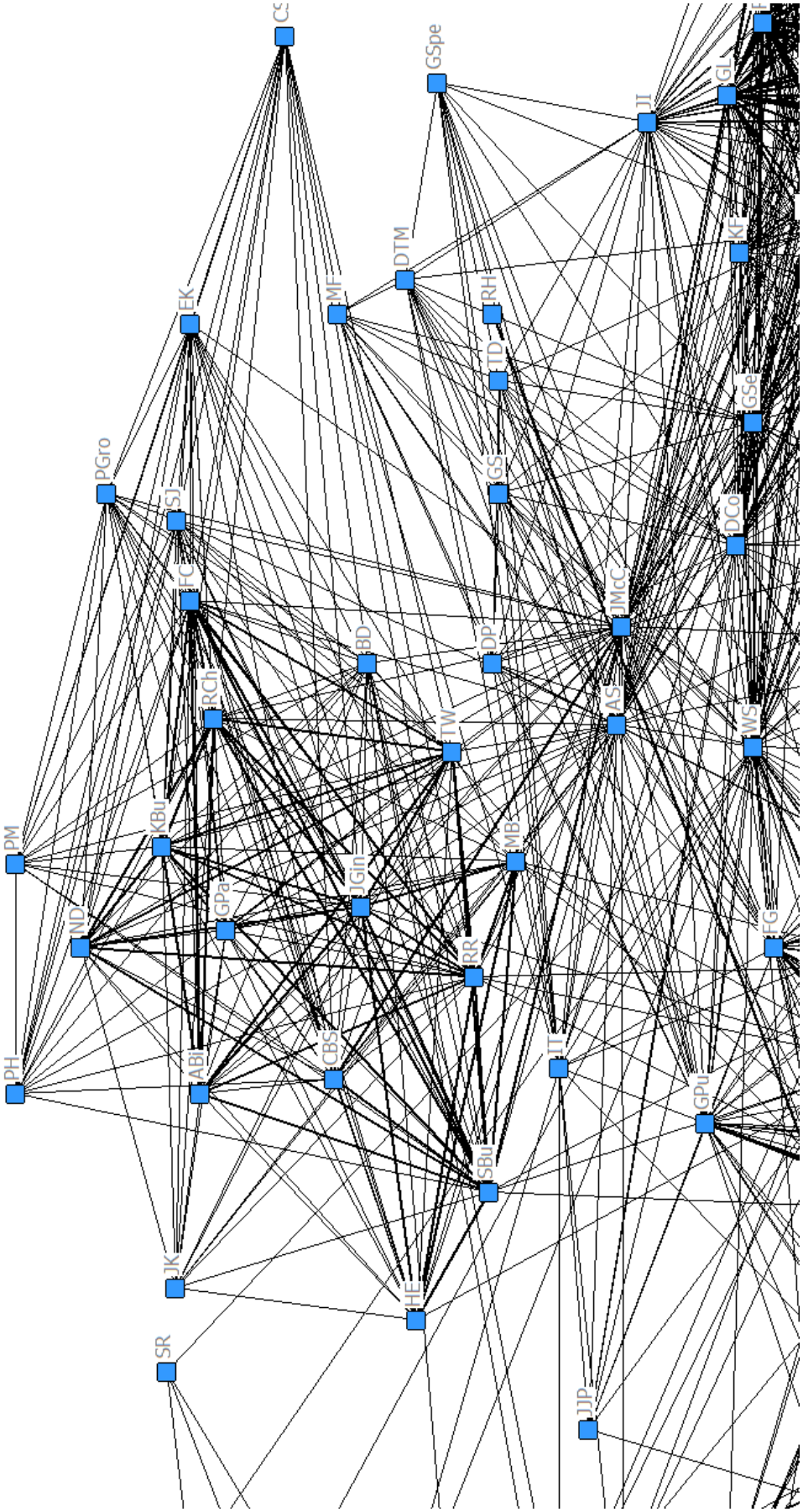


Figure 6.5: Co-location network, 1950 - 1970, Sydney cluster



Expansion of staff and students in economic history was combined with low average institutional mobility. Many scholars remained at either the same university for most of this period, or moved only between universities in the same city. At the ANU, many senior members of the community were appointed in the 1950s, and remained there until 1970, and beyond. This included Noel Butlin, Alan Hall, Alan Barnard, and Colin Forster.[4] In the CUC/Faculties, Herbert Burton was Professor of Economic History throughout the 1950s, retiring in 1965. Graham Tucker took up the Chair of Economic History in 1961, remaining in the position until the 1970s. At the University of Sydney, the core members of the economic history group were stable throughout this period, with Syd Butlin, Alan Birch, Ken Buckley, Jules Ginswick, and Ted Wheelwright each employed for over 14 years continuously in the 1950s and 1960s. The University of Melbourne had similarly stable senior economic history staff at this time, including John La Nauze, Edgars Dunsdorfs, Geoffrey Blainey, Ernst Boehm, Graham Tucker, and Alan Beever.[5] The establishment of Monash University in 1961 precluded very long tenures, though the key economic historians – Sinclair and Pursell – were present for most of the 1960s.[6]

This low institutional mobility was due, in part, to the expansionary mood of the sector at the time. The ANU was a key part of the government's higher education reform, and was a generously-funded, research-only institution.[7] Butlin, in particular, was drawn to the ANU by its focus on research.[8] The University of Melbourne tended to appoint young scholars as tutors or research assistants, promoting them over time to lecturers or readers. This tradition may have been responsible for the long tenures of Beever and Tucker, and for Sinclair's return to the University of Melbourne following graduate studies. Low mobility may have also been due to domestic graduate training. Some domestically-trained students moved to a different institution or city following their graduate studies.[9] However, these were in the minority, with Barnard, Cain, Forster, Keating, McLean, Dowie, and Bambrick at the ANU, Schedvin for the University of Sydney, Trace and Beever for the

---

[4] Butlin and Hall were both appointed to permanent positions in 1951. Barnard and Forster studied for their PhDs in the department in the early 1950s before appointments in 1955 and 1958 respectively. See Appendix A, co-location information.
[5] La Nauze was professor of economic history until 1956, at which time he remained at the University of Melbourne, but moved to the Ernest Scott chair of history. Boehm was appointed to the economics department.
[6] See Appendix A, co-location details.
[7] S. Foster and M. Varghese, *The making of the Australian National University*, Sydney: Allen and Unwin, 1996, p.83-4.
[8] Foster, *Interview with Noel George Butlin*.
[9] Such as Jackson, Davison, Sheridan, and de Marchi.

University of Melbourne, and Merrett for Monash all holding ongoing appointments at their *alma mater*.[10]

While most co-location ties were between those who had long-term appointments at the same university, there was some tendency for scholars to move between universities in the same city. In Melbourne, Monash University initially attracted many of the bright undergraduates and early career scholars from the University of Melbourne.[11] A number of individuals were employed by both institutions at this time, including Sinclair and McCarty.[12] In Canberra, there was mobility of economic historians between the Research School of Social Sciences (RSSS) and the CUC prior to the amalgamation of the ANU in 1960. The CUC was initially an undergraduate college for the University of Melbourne.[13] Economic historians such as Barnard and Forster both had brief appointments at the CUC alongside graduate studies and more permanent appointments in the RSSS. In the 1960s, the relationship between the two institutions was formalised, with the CUC becoming the teaching arm of the ANU (nicknamed 'the Faculties').[14] Cain and Dowie were appointed to economic history departments in the RSSS and Faculties contiguously. There was less mobility of scholars between institutions in Sydney, with McCarty the only member of the community that held appointments at UNSW and the University of Sydney at this time.

As a result of institution-based and, to a lesser extent, city-based interactions, the co-location network in Figure 6.2 is characterised by three large clusters. More appointments and relatively lower institutional mobility at the ANU means that the Canberra cluster is the largest and most dense. The Sydney and Melbourne clusters are smaller, but still show a greater density of ties between economic historians located in the same city. Co-location ties indicate the probability of interaction between individuals based on geographic proximity, and their association with a common focus (in this case, their workplace). Lower transport and communication costs, and fewer 'intervening opportunities' increased the probability that those appointed to the same university would meet and interact.[15] Co-location trends for the economic history community in this period thus indicates that communication was generally amongst people in the same city, with relatively less chance of contact with those elsewhere. Association with a common focus,

---

[10] See Appendix A, co-location info.
[11] Macintyre, Sinclair interviews.
[12] See Appendix A, co-location info.
[13] Foster and Varghese, *Australian National University*.
[14] Foster and Varghese, *Australian National University*.
[15] Sorenson, et al., 'Complexity'; Sorenson and Stuart, 'Syndication networks'; Hedstrom, 'Contagious collectives'.

in particular the ANU, also structured a number of joint activities, which increased collaboration between scholars. By concentrating communication, co-location clusters were an important element in the development of social and intellectual ties in this community.

The three main clusters were mediated by a small number of individuals who held appointments in different cities. These individuals are shown on the edges of, or in the regions between, larger clusters in Figure 6.2. In particular, short-term appointments held by early career scholars meant co-location connections were forged between different cities. Economic history groups at the ANU and the University of Melbourne established short term research/tutor roles, with scholars holding these for a number of years before appointments elsewhere. Sinclair, Pursell, Forster, Gregory, Cain and Tucker held such positions in the 1950s and early 1960s, together forming the link between Canberra and Melbourne. McCarty and Hughes held similar positions at UNSW before moving to Melbourne and Canberra respectively. Butlin and Barnard, despite much stronger ties to the ANU group, each held brief positions at the University of Sydney in the early 1950s. Some more established scholars moved between cities, such as La Nauze and Appleyard, and there were a small number of students who moved between cities, including Snooks, Davison and Sheridan. The small Western Australian sub-region in Figure 6.2 was connected to the main community through Appleyard and Snooks.

The tendency for early career scholars to hold shorter appointments in different cities gave them a unique role in the diffusion of ideas in this community. They became *boundary spanners*,[16] connecting the otherwise disconnected enclaves of economic historians in each location.[17] This influence in the network is reflected in *betweenness* scores, shown in Table 6.2, with larger scores indicating that the actor formed more paths between otherwise disconnected nodes.[18] McCarty's prominence is paramount here, reflecting his role as an intermediary between different communities. Other economic historians, such as Sinclair, Sheridan, La Nauze, Barnard, Tucker, Hughes, Noel Butlin and Forster also had high *betweenness* scores, due to their connection to scholars in different cities. Rather than simply focussing on publications and citations, the co-location analysis

[16] Burt, 'Structural holes'.
[17] The exception was Noel Butlin and Barnard. Though they had brief appointments at the University of Sydney, their far more substantial links with the ANU community meant they are placed well within the ANU cluster in Figure 6.2.
[18] Hanneman and Riddle, *Social network methods*.

reveals the multitude of ways that scholars may have influence in an intellectual community.

These boundary spanners were in the minority though, with the co-location network dominated by large, location-based clusters. This meant that communication was generally concentrated amongst those at the same university, or in the same city. These co-location trends were reinforced by joint activities, which fostered targeted communication about research.

Table 6.2: Betweenness scores, co-location network, 1950 – 1970

	ID	*Betweenness*	*Betweenness as % of base value*
McCarty, JW	JMcC	1062	100
Shaw, AGL	AS	821	77
Sinclair, WA	WS	814	77
Encel, S	SE	725	68
Davison, G	GD	618	58
Sheridan, T	TS	517	49
La Nauze, JA	JLN	507	48
Barnard, A	AB	405	38
Smith, FB	FS	330	31
Tucker, GSL	GT	321	30
Bolton, GC	GBo	299	28
Appleyard, RT	RAp	291	27
Arndt, HW	HA	278	26
Butlin, NG	NB	278	26
Forster, C	CFo	274	26
Hughes, H	HHu	269	25
Nairn, NB	NN	263	25
Ambirajan, S	SA	244	23
de Marchi, N	NdeM	224	21
Mackie, JAC	JM	207	19

Note: Top 20 scholars, ordered by *betweenness*. *Betweenness* is measured as the proportion of shortest paths to other nodes that pass through the particular actor. As the highest-scoring scholar, McCarty's *betweenness* is taken as the base value. Average *betweenness* for the top 20 scholars is 437. For the whole sample, average *betweenness* is 139.

6.2. Getting the gang together

Co-location trends indicate that connections between economic historians in the 1950s and 1960s were dominated by those in each local community. Various professional activities within institutions reinforced these co-location ties, with tea rooms, seminars, PhD supervision, and separate departments of economic history concentrating communication between those working at the same institution. The presence, regularity,

and intensity of these activities was by far the greatest at the ANU, which fostered more intense interactions between economic historians in Canberra than at the other Australian universities.

6.2.1. Tea room

The 'tea room' culture was a key source of interaction amongst staff members at the ANU, with an expectation that individuals from different disciplines would gather and discuss ideas over morning tea.[19] In the early days of the ANU, Noel Butlin and Gus Sinclair have recalled that there was only a single tea room in which scholars from every discipline would mix.[20] Troy has recalled that the diversity of discussion was built into the ritual of the space:

> "There had been a tradition that when you went into that room, you sat in an empty seat. It didn't matter who else was at the table. You were expected to engage with people from different disciplines. That was supposed to be one way of keeping a cross disciplinary conversation going. By and large it worked very well".[21]

The tea room was a space in which to form personal connections, as well as settle the administrative matters of the university.[22] The tradition also contributed to collaboration, with Troy recalling that it was over morning tea that he and Noel Butlin decided to work on road accidents.[23] The tea room thus fostered communication between otherwise disconnected scholars.

This focus had a low constraint, as interactions were informal, and there were a large number of academics involved. As a result, there was lower probability of strong ties between scholars through this focus.[24] However, weaker ties meant that the tea room facilitated contact across domains of knowledge, with oral history sources confirming that

---

[19] Hall; Davison; Troy; Sinclair interviews. Foster, *Interview with Noel George Butlin*.
[20] Sinclair interview; Stephen Foster, *Interview with Emeritus Professor Noel George Butlin* (Canberra: ANU Oral History Archive, 1991).
[21] Troy interview. See also Pincus correspondence.
[22] Hall has recalled that he and Cain often discussed ideas, though their research interests rarely aligned, and Davison has remembered that when he first started his PhD, La Nauze took him down to the RSSS tea room to meet Noel. After some discussion, Butlin asked "well, are you interested in people or in things?" After Davison said the former, Butlin agreed that he should be supervised by La Nauze.
[23] Troy interview. This resulted in N. Butlin and P. Troy, *The cost of collisions*, Melbourne: F. W. Cheshire, 1971.
[24] Feld, 'Social ties'. See chapter 3.

it was the diversity of discussion, and the interaction with those from different disciplines, that was the most valuable aspect of this activity.[25] The tradition was most prevalent at the ANU at this time, though tea rooms became much more widespread in the 1970s and 1980s.

6.2.2. Seminars

Seminars were generally more constrained foci that reinforced connections between ANU economic historians. However, the nature of this activity changed throughout the 1950s and 1960s, developing from a relatively 'open' focus, to more constrained, disciplinary meetings.

Seminars were established within the RSSS from early on, with Butlin leading discussions on theories of economic development from 1952. Many presenters were from the ANU or the CUC, with Swan, Arndt, Hall, Borrie and Burton participating throughout the 1950s.[26] Economic historians from other Australian cities also participated, with Syd Butlin, Copland, Hartwell, Dunsdorfs, Ginswick and La Nauze travelling from Sydney or Melbourne.[27] Schedvin has recalled presenting "a paper or two" in Butlin's seminar in the RSSS during a visit to Canberra during his time as a PhD student in Sydney in the early 1960s.[28]

Between 1957 and 1959, members of the ANU and other Canberra-based institutions participated in Sir Keith Hancock's Wool Seminar. This was a multi-disciplinary initiative, and although it was technically based in the RSSS department of history, Hancock was determined to have participants from a number of disciplines, and from both academic and non-academic organisations.[29] Barnard was heavily involved, handling much of the organisational work, and editing the volume of proceedings that would become *The simple fleece*.[30] The Wool Seminar was a key form of interaction between ANU economic historians and those from other disciplines. Discussions focussed on methodology, with

---

[25] Sinclair; Troy; Davison interviews. Foster, *Interview with Noel George Butlin*.
[26] See letters from Butlin to seminar contributors. ANU Archives (ANUA) 230, item 294. Also, lists in ANU annual reports, ANU annual report 1946 – 1955, p.24; ANU annual report 1958, p.47.
[27] See Butlin's correspondence to contributors, ANUA 230, item 294.
[28] Schedvin interview.
[29] ANUA 377, item 1. See also Butlin's recollection of Hancock in Foster, *Interview with Noel George Butlin*.
[30] A. Barnard, ed. *The simple fleece: Studies in the Australian wool industry*, Melbourne: Melbourne University Press, 1962. See G. Bolton, 'Rediscovering Australia: Hancock and the wool seminar', *Journal of Australian Studies*, 23, 62, 1999.

scholars from different disciplines solving problems and imagining different lines of enquiry for each paper.[31] Butlin has recalled that while he was not terribly excited by the idea of research into wool, the seminar gave him the opportunity to interact with scientists from the CSIRO.[32]

After the establishment of separate departments of economic history in the early 1960s, seminars became more 'closed' in this decade. Presenters included staff members such as Butlin, Cain, Haig, Troy and Hughes, and graduate students Bambrick, McLean, Waterman, Sheridan, Dowie, Macarthy and Keating. Economic history seminars were fairly regular throughout the 1960s, with 14 seminars per year in 1964 and 1965, 11 in 1966, and 16 in 1967-68.[33] The seminar series also fostered collaboration amongst the group, with contributors to Forster's edited volume presenting papers similar to their chapters.[34] The expansion and professionalisation of the field at the ANU, and the training of graduate students may have meant there was no need for organisers to look further than their own 'tribe' for seminar participants in the 1960s. The cost of this professionalisation was connections to other groups. Though Davison recalls participating from his vantage in the history department, there is otherwise very little to indicate participation from scholars in other disciplines, or from other cities.[35] Hall, remaining in Swan's economics group from 1962, has remembered that he rarely participated in economic history seminars in the 1960s. He has argued that this was because each department ran its own meetings, often at the same time.[36] The constraint of this focus thus changed from relatively low, to quite high, with the 1960s seminars fostering strong ties amongst the ANU economic historians.

Seminars at other institutions were relatively rare in the 1950s and 1960s. Blainey and Sinclair have both recalled that there were no joint activities between members of the economic history department at the University of Melbourne at this time.[37] However, Blainey added that generally he and his colleagues would attend – and would sometimes be invited to present at – economics seminars. Blainey has also recalled attending

---

[31] Minutes from Wool Seminar discussions show participants highlighting potential profitable methodologies. See ANUA 377, item 1.
[32] Foster, *Interview with Noel George Butlin*.
[33] ANUA 230-297, 305, 306, 307, 308.
[34] C. Forster, ed. *Australian economic development in the twentieth century*, Sydney: Australasian Publishing Company, 1970. This included Brown and Hughes' presentation on "business organisation and market structure" in 1965, and Cain's presentation "Trade and structure at the periphery" in 1967/68. See ANUA 230, items 305 and 308 respectively.
[35] Davison interview. See also lists of presenters, ANUA 230, items 305 – 308.
[36] On Friday afternoons. Hall interview.
[37] Blainey; Sinclair interviews.

seminars in the history group.[38] Sinclair, while he was at Monash in the 1960s, did not recall any seminar in the ECOPS faculty, nor any activities with those at the University of Melbourne.[39] Schedvin has recalled that the University of Sydney had an "occasional" seminar regime during his appointment there in the late-1960s.[40] This was likely organised by McCarty, and may have fostered contact between the Sydney-based universities. Abbott, of UNSW, acknowledged presenting a chapter from his edited volume at the University of Sydney's seminar group.[41] Based on the size and frequency of seminars in this period, the ANU group certainly dominated. This contributed to the development of strong ties in Canberra at this time.

6.2.3. PhD supervision

Throughout the 1950s there was a shift towards domestic training for graduate students. Though key scholars were still trained in Britain and the US at this time, the ongoing co-location and collaboration effects were minimal. On the other hand, domestic PhD training was associated with greater ongoing social effects, with scholars tending to be appointed to, or develop ties with, those at their *alma mater*. Domestic PhD supervision was dominated by the ANU at this time, through the number of students, influence of supervisors, and integration of students into the activities of the economic history groups.[42] This shift, towards both domestic graduate studies and the dominance of the ANU in this process, contributed to the development of the orthodox approach.

6.2.3.1 Overseas PhDs

In the 1950s, most economic historians who completed their PhD overseas did so in the UK.[43] Students generally examined an aspect of British economic history, though they tended to revert to Australian research topics once they returned home. Boehm, Hall, McCarty, Sinclair and Hughes each completed PhDs in the UK in the 1950s and 1960s. Hall began his PhD at the London School of Economics (LSE) in 1949, under the supervision of

---

[38] Blainey interview.
[39] Sinclair interview.
[40] Schedvin interview.
[41] G. J. Abbott and N. B. Nairn, ed. *Economic growth of Australia 1788-1821*, Melbourne: Melbourne University Press, 1969, p.175.
[42] In the 1950s and 1960s, there were two PhD students in this community at the University of Sydney, one at the University of Melbourne, and one Masters student at Monash. There were 12 PhD students in this community who graduated from the ANU.
[43] This was part of a longer trend, with Hartwell, Syd Butlin, WK Hancock and La Nauze each completing graduate studies in the UK prior to the 1950s.

Ashton and Sayers. He has recalled that he had quite a loose relationship with his supervisors, arguing that Ashton in particular had quite different research interests.[44] Sinclair has argued that he had much greater contact with his supervisors at Oxford. He has commented that although John Habakkuk didn't heavily direct the course of the thesis, they did have regular meetings. Sinclair has argued that Habakkuk's influence was not on the particulars of the research, but was instead by encouraging him to "carefully [consider] all possible causes of an economic event".[45] Sinclair also noted the influence of John Wright, an economics fellow, commenting that he took a "keen interest" in the project due to similar research interests. Boehm's graduate studies also had an intellectual effect, though not directly from his supervisors. Boehm adopted the British historical-quantitative approach in the book published from his Oxford thesis.[46] Boehm explicitly attributed this approach to British economic historians, albeit ones who were not his supervisors.[47]

PhD study undertaken in Britain had minimal ongoing social interactions for this community. Hall briefly acknowledged his supervisors in his thesis, in the book that followed, and in his subsequent work on Melbourne's stock exchange.[48] McCarty acknowledged his Cambridge supervisor K Berrill in his thesis, and Hughes thanked supervisor William Ashworth of the LSE in the book published from her thesis.[49] However, this was as far as ongoing social interactions went for these scholars. For Sinclair, beyond his oral history testimony, there is no other evidence of a social effect from his graduate studies. Sinclair even identified his time at Oxford as an "interlude", interacting more with his contacts in Melbourne and the ANU when he returned home.[50] Boehm's PhD studies also had very little impact on his ongoing collaboration trends, beyond thanking his supervisors Wright and Hartwell in *Prosperity and depression.*[51] Graduate studies in the UK at this time also had no effect on co-location. All those who took their PhDs in Britain returned to positions in Australia, and remained at Australian universities throughout the

---

[44] Hall interview.
[45] Sinclair interview.
[46] See discussion of Boehm's approach in chapter 7.
[47] Namely R. C. O. Matthews and C. G. F. Simkin. See E. A. Boehm, *Prosperity and depression in Australia, 1887-1897* Oxford: Clarendon Press, 1971, p.viii.
[48] A. R. Hall, *The London capital market and Australia 1870-1914*, Canberra: ANU Press, 1963; A. R. Hall, *The stock exchange of Melbourne and the Victorian economy, 1852-1900*, Canberra: ANU Press, 1968.
[49] J. McCarty, *British investment in overseas mining, 1880-1914*, PhD, University of Cambridge, 1960; H. Hughes, *The Australian iron and steel industry 1848-1962*, Melbourne: Melbourne University Press, 1964, p.vii.
[50] Sinclair interview.
[51] Boehm, *Prosperity and depression*, p.viii.

rest of their careers. This contrasts with graduate studies completed in Australia at this time, which had an ongoing impact on the community's co-location and collaboration trends.

Butlin and Pincus both studied for their PhDs in the US, in the late-1940s and the mid-1960s respectively. Butlin spent two years at Harvard, and has recalled that he was determined to go to America because he thought that "was where the real economist-historians were".[52] He enrolled in the PhD program but, deterred by the considerable coursework component, arranged to be awarded the equivalent of a Harvard PhD as long as he didn't claim any rights to it beyond joining Joseph Schumpeter at the Entrepreneurial Research Centre.[53] Butlin worked there for 18 months, writing on colonial socialism in Australia. Butlin has recalled that this experience prompted his enthusiasm for research. Pincus, in the 1960s, completed his Masters and PhD at Stanford University. He has since credited Paul David and Moses Ambramovitz as his biggest influences at this time, through both thesis discussions and as a research assistant.[54] There was a coursework component for his PhD, which included training in econometric methods. Pincus has recalled that his graduate training meant he developed a keen interest in hypothesis testing and its applications to economic history. For Butlin and Pincus there was thus an intellectual impact of graduate studies in the US. There were also ongoing social effects, with Butlin holding two visiting scholar positions in the US during his career, the first at Yale in 1967-68.[55] He also visited the US to present a paper on colonial socialism in 1956, perhaps through contacts he made when he was working on this topic at Harvard. Pincus held no overseas appointments in this period, though he engaged with US economic historians through the ANU visiting scholars program in the 1970s and 1980s.[56] Other ANU scholars were trained in the US in the latter decades which, combined with the links already held by Butlin and Pincus, contributed to social ties between the Canberra group and North American economic historians.

6.2.3.2 Domestic PhD studies

A key change in the economic history community in the post-WWII decades was a shift towards domestic training of graduate students, most of whom studied at the ANU. Generally, supervision involved interpersonal interaction, communication, and the

---

[52] Foster, *Interview with Noel George Butlin*.
[53] Foster, *Interview with Noel George Butlin*.
[54] Pincus interview.
[55] The second was as Professor of Australian Studies at Harvard in the late 1970s.
[56] See discussion of the social network in chapter 8.

diffusion of ideas,[57] but this effect varied between different locations. At the University of Sydney, Schedvin and Jackson both completed PhDs in the economics group in the 1960s. They had similar experiences: Schedvin has mentioned that Ken Buckley "sort of" supervised his PhD, but that Buckley, and the department as a whole, did not really know how to deal with him. He has recalled that he generally worked out problems for himself, and that he interacted much more with archivists than with his supervisor.[58] Jackson was supervised by McCarty, with Schedvin involved at a later stage, but has similarly argued that the supervision process was extremely *laissez-faire*. Jackson has commented that he probably only saw McCarty twice in the two years he was supervised by him.[59]

PhD training at the ANU involved much more interaction between students and supervisors. Ian McLean arrived in 1967 as a research assistant for Bryan Haig. In 1968 McLean began his PhD, and although Cain was his supervisor, he remembers Noel Butlin as the dominant force. As McLean has recalled, "there was no doubt who exercised intellectual and supervisory clout in the department". This was demonstrated by McLean's change in thesis topic, from the role of capital goods in industrialisation, to a production function analysis of Victoria.[60] Thesis acknowledgments reveal the effect of PhD supervision on ANU students. Dowie adopted a research topic and approach almost identical to Noel Butlin, compiling estimates for capital formation in New Zealand in the nineteenth century. He particularly acknowledged Butlin's contributions in this area, arguing that "without the benefit of his experience the task of compiling the capital formation estimates would probably have been insuperable".[61] Michael Keating acknowledged his supervisor Haig for the standard, formal role of providing comments on the work, but also for informal encouragement and advice.[62] Similarly, Sheridan and de Marchi acknowledged their supervisors, Helen Hughes and Graham Tucker respectively, for both feedback and informal encouragement.[63] At the University of Melbourne, Keith Trace thanked his supervisor Woodruff for both technical assistance and

---

[57] These are the roles we would anticipate from PhD supervision. See Collins, et al., 'Cognitive apprenticeship'; Lee, 'Doctoral research supervision'; Pearson and Brew, 'Research training'; Johnston, *Forms of knowledge*.
[58] Schedvin interview.
[59] Jackson interview.
[60] McLean interview. More about this in chapter 7.
[61] J. A. Dowie, *Studies in New Zealand investment 1871-1900*, Doctor of Philosophy, ANU, 1965, p.iii.
[62] Keating thesis, preface.
[63] T. Sheridan, *A history of the Amalgamated Engineering Union: Australian section, 1920 - 1954*, Doctor of Philosophy, Australian National University, 1967, p.iv; N. de Marchi, *John Stuart Mill and the development of English economic thought: A study in the progress of Ricardian orthodoxy*, Doctor of Philosophy, Australian National University 1970, p.iv.

encouragement.[64] At Monash, Merrett has recalled substantial interaction with his Masters supervisor Gus Sinclair, commenting that he "learnt so much from him".[65]

PhD supervision also led to contact between students and other members of the department. At the ANU, students were included in the RSSS economic history department's seminar in the 1960s, with Macarthy, Dowie, Waterman, Sheridan, Keating, Bambrick, Cornish, McLean, and de Marchi presenting papers similar to their thesis topics between 1964 and 1970.[66] Some, like the 1966 series, were almost exclusively dedicated to graduate student presentations.[67] As Waterman acknowledged in his thesis:

> "One of the many advantages of preparing a thesis in the Australian National University is the opportunity of frequent discussion both in seminars and in private meetings, with many experienced research workers in one's own field".[68]

McLean, Sheridan, and Dowie each acknowledged either non-supervisor staff members, or the more general advice from members of the economics and economic history departments at the ANU.[69] The group of PhD students, with the exception of Sheridan and de Marchi, continued their association with the ANU after their thesis,[70] and adopted the orthodox approach in their published work.[71]

Elsewhere, supervision did contribute to ongoing interactions. For instance, Schedvin has recalled becoming friends with staff member John McCarty during his candidature at the University of Sydney, and was appointed to that institution in the late-1960s.[72] McCarty and Schedvin would continue to work together, and collaborate, throughout the 1970s and 1980s. However, the other Sydney graduate of the time – Jackson – had very little to do with the University after his studies.[73] Merrett continued his appointment at Monash throughout the 1970s and 1980s. Compared to the other sites of PhD training, there were

---

[64] K. Trace, *Australian overseas shipping, 1900 - 60*, Doctor of Philosophy, University of Melbourne, 1965, p.ii.
[65] Merrett interview.
[66] ANUA 230-297, 305, 306, 307, 308, 309.
[67] ANUA 230-307. The 1966 series (in order): Keating, Bambrick, Macarthy, Haig, Waterman, Keating, Sheridan, Macarthy, Cornish, Sheridan, Waterman. Haig was the only staff member to present in this year.
[68] A. M. C. Waterman, *Fluctuation in the rate of growth: Australia 1948 - 49 to 1963 - 64*, Doctor of Philosophy, Australian National University, 1967, p.v – vi.
[69] I. W. McLean, *Rural output, inputs and mechanisation in Victoria 1870 - 1910*, Doctor of Philosophy, Australian National University, 1971, p.iii; Sheridan, *Amalgamated Engineering Union*, p.iv; Dowie, *New Zealand investment* , p.iii.
[70] See Appendix A, co-location.
[71] The published work of these students emerged from the 1970s. See chapter 9.
[72] Schedvin interview.
[73] Merrett interview.

greater numbers of students at the ANU, and evidence to suggest this was a focus with much greater constraint. This contributed to the strong social and intellectual ties between members of the ANU economic history community.

6.2.4. Separate departments

Separate departments of economic history reinforced co-location ties between scholars at the same university. Independent economic history groups emerged in Australia, for the most part, in the 1960s and early 1970s. This was part of the expansion of the higher education sector, and the trend towards more fragmented institutional structures. Separate departments gathered economic historians within a small group, concentrating their communication with each other, and limiting their contact to those from other departments. They also established hierarchies for the field, and provided the opportunity for the field's leaders to exert influence over scholars.

Departments of economic history in this period were small, generally between four and nine appointments. The University of Melbourne was the exception, with between 11 and 15 appointments for most of the 1960s.[74] Professors (who were also the heads of departments) set the tone for the group. This was through their role as 'God Professor', with the term used to describe the concentration of power with each department's professor in this era, including control over appointments, students, courses, administration, and the research program.[75] Professors were also on permanent tenure, which meant the department could be stuck with a 'dud', as Geoffrey Serle put it, for 30 years or more.[76]

At the University of Melbourne, La Nauze has been remembered as the "obvious leading light" of the economic history department in the 1950s.[77] At the ANU, Tucker has also been remembered as an important mentor of scholars the Faculties.[78] Noel Butlin was definitely the driving force of the RSSS department. He has been remembered as "too dominant",[79] holding considerable influence over practitioners and the research program.[80] He has been

---

[74] See Appendix B, economic history appointments.
[75] Forsyth, *Modern Australian university*; G. Serle, 'God-professors and their juniors', *Vestes*, 6, 1, 1963.
[76] Serle, 'God-professors', p.12.
[77] Sinclair interview.
[78] Jackson; Cornish interviews.
[79] Hall interview.
[80] Gregory; Hall; Cornish; McLean interviews.

described as a “controlling”, “intimidating” scholar,[81] who breathed down people’s necks.[82] Butlin’s strong personality, combined with his position as God Professor of a research-driven economic history department, can partly explain the considerable influence he had on colleagues at the ANU. This influence is demonstrated by collaboration trends, and the diffusion of his intellectual approach to his colleagues.[83]

The small size of departments, and the influence of God Professors, meant that the economic history groups were constrained foci that fostered intense interactions amongst scholars. They formalised the ‘success’ of the field by assuring institutional space alongside the expansion of appointments and PhD students. This gave the field independence, identity, and recognition within each university.[84] Strong ties between economic historians were expressed through other department-based activities, with seminars changing from relatively open infrastructures to ‘closed’ meetings after the establishment of separate groups at the ANU, and with collaboration also much more intense among members of each department. On an individual level, there is evidence that separate departments cut off the economic historians from those in other groups. Hall has recalled that he decided to remain in Swan’s economics department from the 1960s, and his absence from the economic history department’s activities meant his contact with Butlin and others in the group was limited.[85] Separate departments thus amplified the effect of co-location for scholars, and were a key part of the ‘maturation’ of economic history in the 1950s and 1960s.

The nature of these joint activities highlights that although co-location ties were experienced by most scholars, the nature of each university affected the intensity of interaction between economic historians. Feld’s foci theory argues that joint activities associated with a common focus increases the probability of interaction, with the constraint of these foci affecting the strength of ties.[86] More constrained joint activities at the ANU fostered greater communication between economic historians, encouraging collaboration and the adoption of a consistent methodology. Elsewhere, more sparse joint activities meant lower levels of collaboration, and less consistency of approach. This

---

[81] Hall; Macintyre interviews.
[82] Cornish interview.
[83] See the discussion of the orthodox approach in chapter 7.
[84] This is a key criteria for the development of intellectual movements, as outlined by Frickel and Gross, 'Scientific/intellectual movements'.
[85] Hall interview.
[86] Feld, 'Social ties'.

contributed to the social and intellectual dominance of Canberra in Australian economic history in the 1950s and 1960s.

6.3. Collaboration

The expansion of staff, and concentration of interactions, was accompanied by collaboration amongst economic historians. Relatively high travel and communication costs meant that collaboration was generally between those in the same local community. Collaboration was also determined by the nature of joint activities at each institution, with more constrained activities at the ANU fostering much greater levels of collaboration. Intellectual similarity was also a major motivation, with scholars choosing to work with either similar or complementary colleagues. By providing another focus through which communication about research could occur, collaboration reinforced the orthodox approach at the ANU. Elsewhere, smaller pockets of collaborative relationships developed, and these were also associated with a consistent approach or interpretation.

6.3.1. Edited works

Figure 6.6 indicates that Australian economic historians participated in three main edited works in the 1960s, two of which were based at the ANU. *The simple fleece*, edited by Alan Barnard, compiled papers presented at the ANU's Wool Seminar.[87] In addition to Barnard, other members of the ANU community participated, including economic historians Hancock, Cain, Noel Butlin, and economist Fred Gruen. Most other contributors were scholars at the ANU, or other Canberra-based government agencies such as the CSIRO. Co-authored chapters were limited, but in each instance the authors worked not only in the same city, but in the same department: two co-authored chapters were by members of the Bureau of Agricultural Economics,[88] and the other was co-authored by Noel Butlin and Barnard, who were both members of the RSSS Department of Economics at the time. Aside from the relatively small number of chapters authored by economic historians, most contributors and themes were broad. It was a multidisciplinary project, bringing together authors from natural science, politics, and labour history, industrial relations, and others to examine a common issue. In addition to geographic proximity, collaboration was thus

[87] Barnard, ed. *The Simple Fleece*; Bolton, 'Rediscovering Australia'.
[88] Chapter 22 by D. H. McKay and A. Ward, and chapter 36 by G. O. Gutman and Margaret Fead.

also motivated by *transactive memory*, or by complementarity in the specialties of authors.[89]

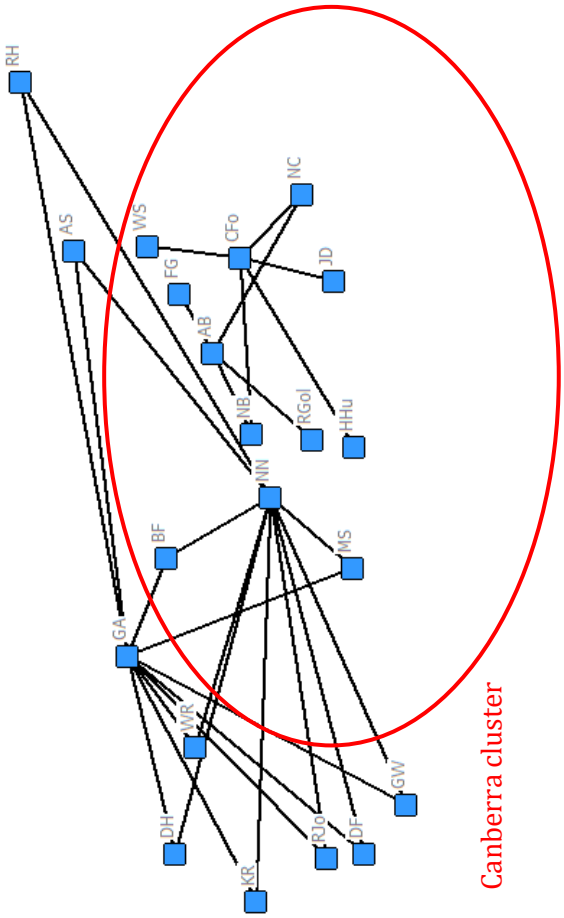
Forster's edited volume exclusively involved current or former members of the ANU economic history community.[90] Chapter authors included Forster himself, Sinclair, Cain, Hughes, Dowie, and Noel Butlin. The volume emerged from the normal professional activities of the ANU economic history departments, with contributors presenting draft chapters as part of the RSSS seminar from 1965 onwards.[91] Association with a common focus thus structured collaboration on this volume. This is shown visually in Figure 6.6, with most contributors part of the large ANU cluster. The exception was Sinclair, who had worked at the ANU in the 1950s, but had returned to Melbourne by the 1960s.

Contributors to this volume were also generally a part of the orthodox school of economic history. Butlin, as a key proponent of this tradition, and the group's God Professor, has been remembered as asserting himself fairly substantially during discussions.[92] Forster, Sinclair and Dowie also adopted this methodology in other published texts in the 1960s.[93] Cain and Hughes, on the other hand, adopted a realist approach in some texts. In addition to sharing a common focus, collaboration in this case was also motivated by *homophily*, with a similar methodology easing communication between contributors.[94] Sub-authorship supports this, with other ANU economic historians who adhered to the orthodox school – such as Haig and Hall – thanked for providing assistance and feedback.[95] Collaboration on this volume was thus eased by both a common focus, and a consistent methodology.

---

[89] Hollingshead, 'Retrieval processes'; Hollingshead, et al., 'Intranet knowledge-sharing'; Katz, et al., 'Small groups'; Wegner, 'Transactive memory'.
[90] Forster, ed. *Australian economic development*.
[91] Beginning with Brown and Hughes' seminar, as discussed above. The ANU annual report in 1966 also mention collaboration on the volume, see ANU annual report 1966, p.62.
[92] Sinclair interview.
[93] See the discussion of the knowledge network in chapter 7. Dowie's other work in this period was on New Zealand and was a PhD thesis, so is not included in this corpus. But in the preface, he comments that the thesis was deliberately comparable to Butlin's orthodox work.
[94] Brass, 'Human resources management'; Lazarsfeld and Merton, 'Friendship'; McPherson, et al., 'Birds of a feather'.
[95] See N. Cain, 'Trade and economic structure at the periphery', in Forster, ed., *Australian economic development in the twentieth century*, Sydney: Australasian Publishing Company, 1970, pp.66, 74; J. A. Dowie, 'The service ensemble', in Forster, ed., *Australian economic development in the twentieth century*, Sydney: Australasian Publishing Company, 1970, pp.240, 251.

Figure 6.6: Collaboration on edited works, 1950 - 1970



Abbott and Nairn published an edited volume at around the same time.[96] Contributors were more geographically diverse, with Figure 6.6 showing authors from each of the large clusters, as well as from outside the co-location analysis. Chapter authors hailed from Britain, Canberra, Adelaide, Queensland, Tasmania, and Newcastle.[97] As the two editors were located at UNSW during the 1960s, the volume included contributors from the Sydney cluster most heavily.[98] However, although a number of contributors had co-location ties with the editors, very few had ties with each other.[99]

Collaboration on this volume may have been motivated by *homophily*, with chapter authors generally appointed to history faculties at this time.[100] Hainsworth's other work in this corpus had a qualitative and realist emphasis, highlighting the method of the history discipline. Hartwell and Abbott were key members of the economic history field, with Abbott appointed to the UNSW economics group, and Hartwell publishing early texts in the orthodox tradition. However, the majority of contributors were historians who had an interest in economic matters. This similar background likely eased collaboration amongst the group, and contributed to the volume's overall analytical methodology.[101]

Edited works at this time had different motivations for collaboration, with geographic proximity an important factor in the two Canberra-based volumes, but less important for Abbott and Nairn's book. *Homophily* heavily structured Forster's edited work, somewhat influenced Abbott and Nairn's choices of contributors, but was not important for contributors to *The simple fleece*. The effect of these collaborations, similarly, diverged based on the environment in which the work was produced. *The simple fleece* was associated with regular joint activities over a three-year period, in which scholars from different disciplines came together to discuss ideas. However, although the seminar may

---

[96] Abbott and Nairn, ed. *Economic growth of Australia*.
[97] Britain (Hartwell; Fieldhouse), Canberra (Steven; Walsh), Adelaide (Hainsworth), Queensland (Joyce), the University of Tasmania (Rimmer, who then worked at UNSW) and the University of Newcastle (Robinson). The latter two institutions were beyond the main centres of economic history, so they shared no co-location ties with other economic historians in this period. They are thus placed outside the main clusters in Figure 6.6.
[98] Abbott; Nairn; Rimmer; Fletcher from UNSW. Shaw from the University of Sydney (and then Monash).
[99] For instance, Hartwell and Fletcher were both co-located with editor Bede Nairn in this period, though their tenures at UNSW were separated by four years - Hartwell left in 1956, and Fletcher arrived in 1960.
[100] See Abbott and Nairn, ed. *Economic growth of Australia*, p.v. Nairn, Steven, Joyce, Shaw, Fieldhouse, Fletcher, Rimmer, Hainsworth and Walsh held positions in history schools at this time.
[101] See the discussion of the knowledge network in chapter 7.

have increased communication between the ANU economic historians and other disciplines, expression of this in the published volume was limited. There was no co-authorship or sub-authorship across disciplinary boundaries, and the ANU economic historians did not adopt radically different interpretations as a result of contact with those in other groups. Cain's chapter in the volume was more or less the same as his earlier article in *Economic Record*, and Barnard presented elements of his wool marketing thesis.[102] Butlin's engagement with the biology of pastures and noxious scrubs indicates some small cross-disciplinary influence,[103] but on the whole professional and intellectual integration in this volume was minimal.

The effect of collaboration on Abbott and Nairn's work is not clear. Chapters contained no acknowledgments, and there was no mention of a workshop for the volume. The geographic diversity of collaborators, and lack of explicit joint activities, suggests that the level of discussion on this volume was probably fairly low. Sinclair has highlighted the joint activities, in the form of workshops, associated with Forster's edited volume. He has commented that the level of collaboration on the volume was quite deep simply because everyone was in fairly close contact anyway.[104] Forster's influence as editor was acknowledged by Hughes, and Butlin's role as a leader of the group was acknowledged in chapters by Cain and Hughes.[105] Integration of this volume with normal activities of the economic history departments also likely increased the communication amongst the Canberra group as a whole. The consistency of this volume with the orthodox school was thus due to geographic proximity, a common workplace, and existing intellectual similarity between scholars. The orthodox school was reinforced by activities associated with this edited volume, with workshops and seminars fostering communication about research.

---

[102] N. Cain, 'Companies and squatting in the Western Division of New South Wales 1896 - 1905: It is not a black prospect; it is a black past', *Economic Record*, 37 78, 1961; A. Barnard, *The Australian wool market, 1840-1900*, Melbourne: Melbourne University Press, 1958.
[103] N. G. Butlin, 'The growth of rural capital', in Barnard, ed., *The simple fleece*, Canberra: ANU Press, 1962.
[104] Sinclair interview.
[105] Cain, 'Trade and structure', p.66; P. Brown and H. Hughes, 'The market structure of Australian manufacturing industry', in Forster, ed., *Australian economic development in the twentieth century*, Sydney: Australasian Publishing Company, 1970, p.169.

6.3.2. Co-authorship

Co-authorship was relatively limited in the 1950s and 1960s, though it occurred exclusively between geographically proximate scholars. Figure 6.7 indicates that Noel Butlin was the most prolific co-author, and that he exclusively collaborated with those in his local environment. This included an article with Heinz Arndt while at the University of Sydney, and with H de Meel, Barnard, and Dowie while at the ANU.[106] Abbott and Nairn also collaborated on their edited volume, which was likely motivated by co-location at UNSW in the 1960s.

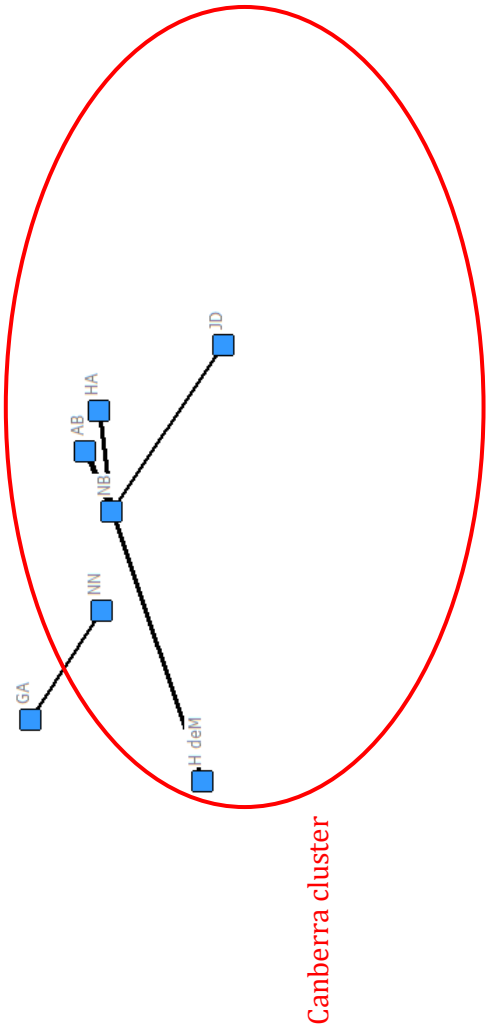
Co-authorship, in Butlin's case, was also structured by *homophily*, as his collaborators generally shared similar ideas and methods. De Meel was a research assistant specifically appointed to the RSSS to assist with a statistical library.[107] Dowie and Barnard were both PhD students and colleagues who expressed the orthodox methodology in their other published work. Arndt was an economist who had worked with Butlin early in his career, and shared his interest in the macroeconomy, and quantitative and inductive research. *Transactive memory*, or complementary skills, was likely responsible for Abbott and Nairn's collaboration. Abbott was the specialist in economics, and Nairn the specialist in history.

Co-authorship reinforced existing co-location and intellectual trends, by providing an additional joint activity through which scholars could interact. Co-authorship is a relatively constrained focus, with substantial time, emotional and intellectual investment needed to write a piece of research together.[108] Barnard and Butlin maintained a similar approach throughout this period, and collaborated a number of times in the following decades. Dowie, similarly, adopted the orthodox approach in his thesis on New Zealand, and collaborated with other orthodox scholars in Forster's volume. De Meel left Australia in the 1950s, as did Abbott in the 1960s, meaning there was less discernible effect from these partnerships. Co-authorship was thus particularly concentrated on the ANU, reinforcing the orthodox school amongst those in Canberra.

---

[106] H. W. Arndt and N. G. Butlin, 'National output, income and expenditure of N.S.W., 1891', *Economic Record*, 26, 50, 1950; N. G. Butlin and H. de Meel, *Public capital formation in Australia: Estimates 1860 - 1900*, Canberra: Australian National University, 1954; Butlin and Barnard, 'Pastoral finance'; N. G. Butlin and J. A. Dowie, 'Estimates of Australian work force and employment, 1861 - 1961', *Australian Economic History Review*, 9, 2, 1969.
[107] See ANU annual report 1951, p.11.
[108] Laudel, 'What do we measure'; Moody, 'Collaboration network'; Newman, *Networks*; Wang, et al., 'Knowledge networks'.

Figure 6.7: Co-authorship, 1950 – 1970



6.3.3. Sub-authorship

As a less constrained focus that generally involved a lower commitment of time and effort,[109] sub-authorship was a much more frequent form of collaboration in the 1950s and 1960s. Figure 6.8 presents the sub-authorship network. It indicates that there was some structuring of sub-authorship by co-location, with colleagues, PhD supervisors and research assistants acknowledged most readily by those in the community. It also indicates the prominence of the ANU cluster in developing sub-authorship ties, with this region shown in more detail in Figure 6.9.

Colleagues were thanked for *routine service collaboration* roles, such as access to unpublished data, advice for calculations, or research notes. Bailey thanked Butlin for unpublished estimates,[110] and Butlin acknowledged access to statistics or advice for calculations,[111] unpublished theses,[112] ongoing projects,[113] and assistance with specific points in his texts.[114] Syd Butlin similarly acknowledged colleagues, citing Hartwell's unpublished work on Van Diemen's Land while they were both working in Sydney, and thanking former University of Sydney colleague Richard Mills for assistance on certain issues.[115] Hartwell, Barnard, Cain and Dowie acknowledged colleagues for access to unpublished material or guidance for their use.[116]

---

[109] Cronin, 'Bowling alone together'; Cronin and Overfelt, 'The scholar's courtesy'; Katz and Martin, 'Research collaboration'; Laudel, 'What do we measure'; Mullins, *Theory and theory groups*; Subramanyam, 'Bibliometric studies'.
[110] J. D. Bailey, *Growth and depression: Contrasts in the Australian and British economies 1870 - 1880*, Canberra: ANU Press, 1956, p.126.
[111] N. G. Butlin, 'Some structural features of Australian capital formation, 1861 - 1938/39', *Economic Record*, 35, 72, 1959, p.389; N. G. Butlin, 'Colonial socialism in Australia', in Aitken, ed., *The state and economic growth: Papers of a conference held on October 11-13, 1956 under the auspices of the Committee on Economic Growth*, New York: Social Science Research Council, 1959, p.65; Butlin, *Investment*, p.132.
[112] Butlin, 'Australian capital formation', p.413.
[113] Butlin and de Meel, *Public capital formation*, p.13
[114] Butlin, 'Colonial socialism', p.42; Butlin, *Domestic Product*, p.37.
[115] Hartwell: Butlin, *Foundations*, p.297. Mills: Butlin, *Foundations*, p.472.
[116] A. Barnard, *Visions and profits: studies in the business career of Thomas Sutcliffe Mort*, Melbourne: Melbourne University Press, 1961, p.58; Cain, 'Trade and structure', p.74; Dowie, 'Service ensemble', p.240; R. M. Hartwell, *The economic development of Van Diemen's Land, 1820-1850* Melbourne: Melbourne University Press, 1954, p.viii.

Figure 6.8: Sub-authorship, 1950 - 1970

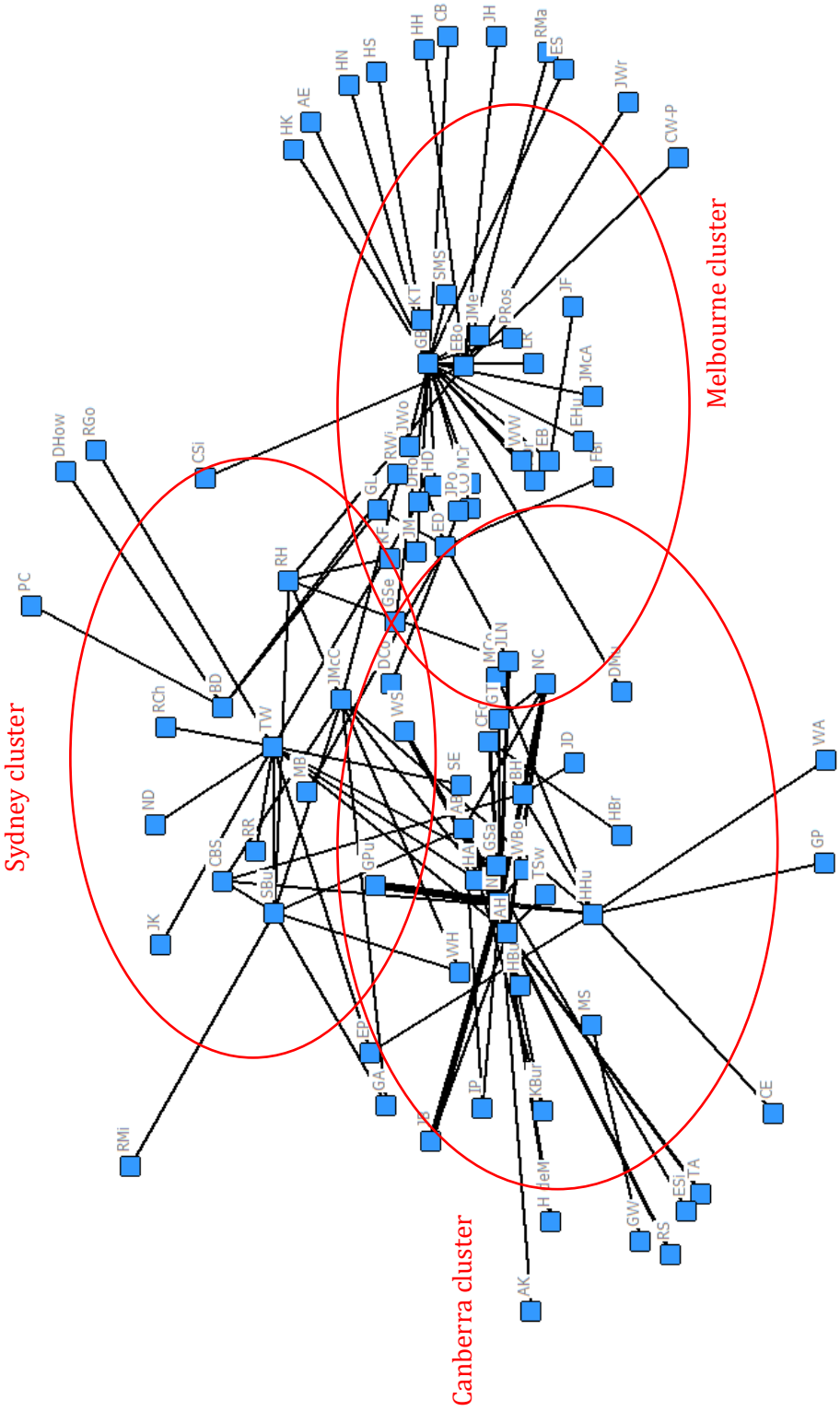
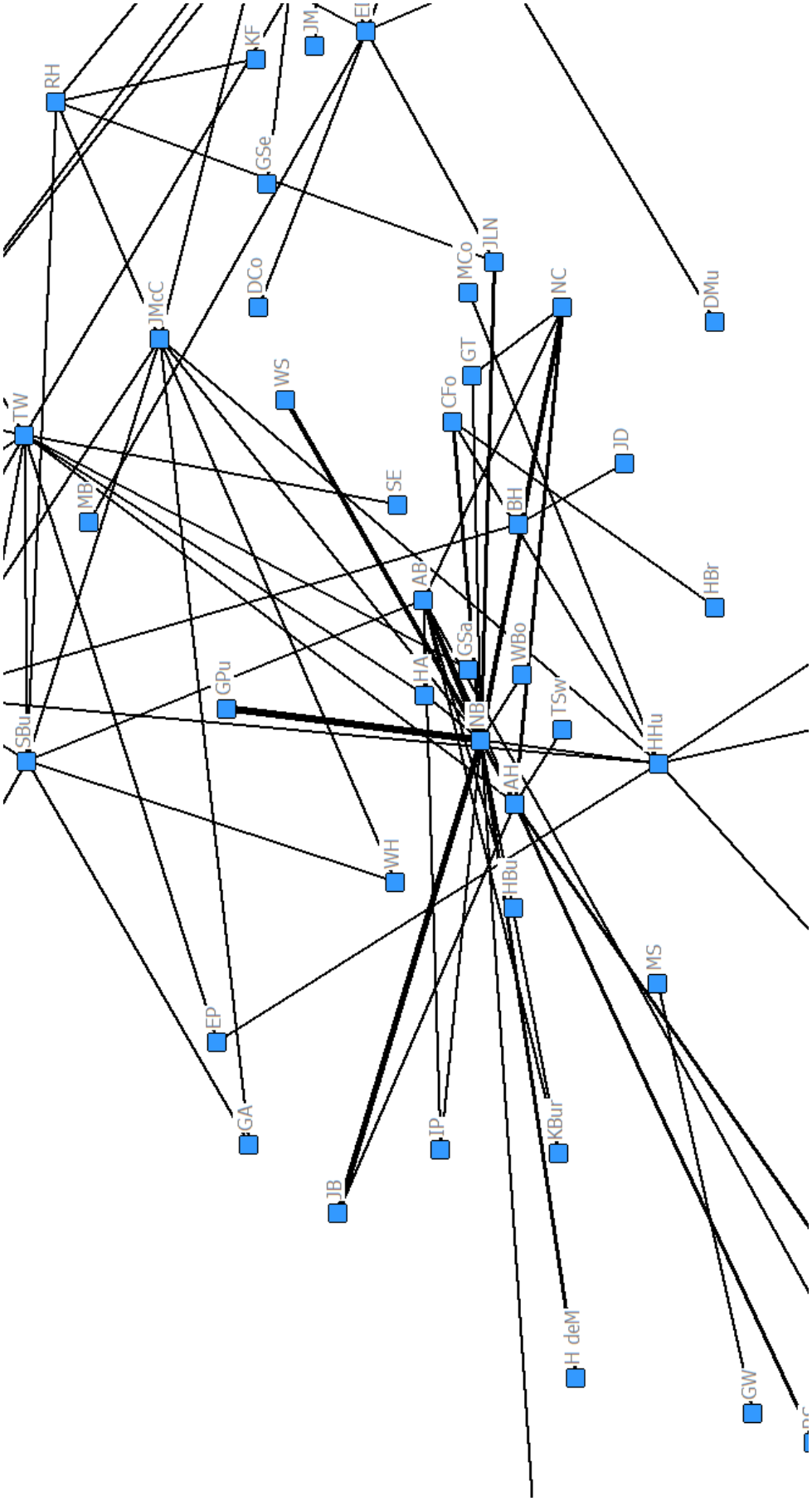


Figure 6.9: Sub-authorship, 1950 – 1970, Canberra cluster



Colleagues were acknowledged for *mutual stimulation*, involving intangible communication and encouragement.[117] Blainey acknowledged his former teacher Max Crawford for prompting his study of the Mount Lyell region,[118] Forster and Barnard both acknowledged their supervisor and colleague Noel Butlin for stimulus and encouragement,[119] as did Schedvin for his University of Sydney colleagues Syd Butlin and McCarty.[120]

Sub-authors also represented *trusted assessors*, or those individuals who were sought out to provide feedback and criticism on their work. At the University of Melbourne, Dunsdorfs thanked his colleague La Nauze for help with language problems as well as more general comments.[121] Beever and Boehm both recognised Blainey for offering criticism, and Blainey himself mentioned colleagues Beever and Keith Trace amongst other members of his department for helpful discussions.[122] At the ANU, Hall thanked Trevor Swan for help formulating certain ideas, and Noel Butlin thanked colleagues Tucker, Barnard and Cain for comments.[123] In Forster's edited book, chapter contributors acknowledged trusted assessorship from either Forster, other authors, or members of the ANU community.[124] Hughes, while she was at the ANU, thanked Schedvin and McCarty for offering comments on her work on Australian iron and steel. Hughes had worked at UNSW with McCarty from 1959 to 1960, and shortly after Schedvin began his PhD at the University of Sydney.

While a common workplace partially structured sub-authorship ties, *homophily* was also a motivation. Figure 6.9 indicates that members of the orthodox school had particularly strong sub-authorship ties, including Butlin, Sinclair, Hall, Barnard, Haig, Forster, and Cain. Research assistants who helped produce orthodox works formed other sub-authorship connections, including Pursell, de Meel, and Bailey. Scholars also discussed their work

---

[117] See definition in Laudel, 'What do we measure'.
[118] G. Blainey, *The peaks of Lyell*, Melbourne: Melbourne University Press, 1954, p.vi.
[119] C. Forster, *Industrial development in Australia 1920-1930*, Canberra: ANU Press, 1964, p.ix; Barnard, *Australian wool market*, p.vi.
[120] C. B. Schedvin, *Australia and the Great Depression: A study of economic development and policy in the 1920s and 1930s*, Sydney: Sydney University Press, 1970, p.xiv.
[121] E. Dunsdorfs, *The Australian wheat-growing industry 1788 - 1948*, Melbourne: Melbourne University Press, 1956, p.vii.
[122] Boehm, *Prosperity and depression*, p.viii; E. A. Beever, 'The Australian wool clip 1861 - 1900', *Economic Record*, 39, 88, 1963, p.437; G. Blainey, *The tyranny of distance*, Melbourne: Sun Books, 1966, p.xiii.
[123] Hall, *London capital market*, p.192; Butlin, *Investment*, p.xv.
[124] Cain mentioned Butlin and Hall, along with other members of the RSSS, see Cain, 'Trade and structure', p.66. Hughes thanked Butlin and Forster for comments, see Brown and Hughes, 'Market structure', p.192.

with economists or historians, depending on their approach. Orthodox scholars were tied to ANU economists, with Hall mentioning Swan, and Butlin and Barnard acknowledging Arndt. Davidson and Dunsdorfs' economics-based approach was reflected in their acknowledgment of colleagues in economics departments.[125]

As a less constrained focus, some sub-authorship ties were to geographically disparate scholars. This is indicated in Figure 6.8, with a number of ties that cut across the broad location-based clusters. Generally, thematic *homophily* was the motivation here, with scholars seeking the appraisal of those who engaged in similar themes. Noel Butlin and John McCarty's common interest in the mechanisms of Australia's development likely prompted their sub-authorship.[126] Hartwell thanked Kathleen Fitzpatrick for her specialist knowledge, and Barnard acknowledged helpful comments from wool-trade researcher E. M. Sigsworth of the University of Leeds.[127] Blainey consulted mining engineers, meteorologists, natural scientists and historians, based on their research specialty. PhD supervisors were the other type of overseas sub-authorship. Boehm thanked Wright, Hartwell, Habakkuk and Matthews of Oxford University, Hall acknowledged LSE supervisors Sayers and Ashton, and Hughes thanked LSE supervisor Ashworth. Visiting scholars made very few waves in terms of sub-authorship, with the exception of Edith Penrose, who was acknowledged by Hughes and Wheelwright.[128]

As a less constrained focus in this intellectual community, sub-authorship was a relatively 'open' form of collaboration. It was often the primary connection economic historians had to parent disciplines, or to the international economic history community. It thus partially mediated the enclaves of social relationships at each location, and exposed economic historians to ideas from different domains. However, while sub-authorship was more diverse than other forms of collaboration, there was still a tendency for scholars to seek out those in their local community. Sub-authorship thus reflected the informal communication that generally accompanies geographic proximity and a common workplace. As with the other forms of collaboration, the greatest number and density of sub-authorship ties were within the ANU group, centred on Noel Butlin and the other orthodox economic historians. This was due to greater volume of research produced within this group, and a greater tendency for ANU scholars to engage in informal

---

[125] Davidson: Cassidy, Howell, Leeper. Dunsdorfs: Bels, Binet, Cochrane, Leeper, Polgaze.
[126] Butlin, *Investment*, p.xv.
[127] Hartwell, *Van Diemen's Land*, p.viii; Barnard, *Australian wool market*, p.172.
[128] Penrose was a visiting Professor in RSSS School of Economics in 1955. See ANU Annual Report 1955, p.27.

collaboration at this time. Sub-authorship also reinforced collaboration by providing an additional foci – somewhere between the formality of co-authorship and the intangibility of the tea room or seminar discussions – through which members of this community could interact and influence one another.

6.4. Bridging the social clusters

Figure 6.10 presents the combined network of social interactions for this field in the 1950s and 1960s. The co-location and collaboration ties have been combined using the procedure outlined in chapter 4. This combined network shows that the Australian economic history social network was characterised by three large clusters, with collaboration generally between geographically proximate scholars. The largest and most dense cluster of social interactions was between those in Canberra. This was due to greater tendency for members of the ANU community to engage in collaboration. As the preceding discussion highlights, this was, in turn, because of the nature of the ANU at the time. The tea room culture, active seminar program, close PhD supervision, and separate departments of economic history fostered dense interactions between ANU economic historians. Elsewhere, these activities were less-developed, which resulted in less (though still some) clustering of collaboration between scholars in Sydney and Melbourne. Some nodes are located outside of these main clusters. These indicate those who worked overseas, or in smaller economic history communities such as UWA or Adelaide.

The location-based communities were mediated by individuals who held connections in a number of different groups. In a network, those located on the edge of, or in between, clusters tend to be more prominent as they have diverse connections and are able to broker ideas in the group.[129] This role can be determined quantitatively, with *betweenness* scores indicating prominence based on the degree to which the scholar was an intermediary between different groups. Table 6.3 presents *betweenness* metrics for the combined social network. Some scholars were prominent for holding appointments in different cities. McCarty had the highest *betweenness* in this community, due to his role as a broker of ideas and contacts between otherwise disconnected local groups. McCarty held contiguous appointments in Sydney and Melbourne, forming a key visual conduit between these communities in Figure 6.2. Figure 6.8 also shows that McCarty had sub-authorship

[129] Burt, *Structural holes*; Burt, 'Structural holes'; Granovetter, 'Strength of weak ties'; Reagans and McEvily, 'Network structure'; Podolny and Baron, 'Resources and relationships'.

connections to scholars in each of the three clusters. Rather than dominating any particular local scene at this time, McCarty was prominent by forming the path through which communication could occur between different groups. This visual and quantitative indication of McCarty's role in the community is supported by oral history sources, with members of the community remembering him as very bright, collegial, and supportive of the intellectual efforts of others.[130] Sinclair, similarly, held appointments in Canberra and Melbourne, and was part of the collaboration networks for the ANU group. His high *betweenness* score was likely due to his role in connecting these two communities.

Prominence also emerged through sub-authorship. Table 6.3 indicates that Boehm had the second highest *betweenness* in the group. This largely reflected his diverse sub-authorship ties to British economists and economic historians.[131] Blainey's sub-authorship connections were largely within the Melbourne community, but were diverse in terms of disciplinary background. He was prominent by linking the economic history community to scholars from engineering and natural sciences.[132] Hughes and Wheelwright were also prominent due to diverse sub-authorship ties.

Examining boundary spanners highlights the importance of 'connections' for intellectual communities. Butlin, for instance, was heavily involved in the ANU community, and developed a strong reputation based on his prominence in this group. However, his connections were highly localised and as a result his *betweenness* score in Table 6.3 is quite modest. This has been supported by oral history sources, with Blainey recalling the limited influence of Butlin beyond Canberra.[133] McCarty, to compare, has been largely unheralded in the economic history community, though the social networks reveal his important role as an intermediary. This was through appointments in different cities, and sub-authorship ties to diverse scholars. The social networks thus democratise the history of this group, revealing the importance of scholars beyond their publications or citations.

---

[130] Blainey; Davison; Merrett; Schedvin; Sinclair interviews.
[131] Boehm, *Prosperity and depression*, p.viii.
[132] G. Blainey, *The rush that never ended: A history of Australian mining*, Melbourne: Melbourne University Press, 1963.
[133] Blainey interview.

Figure 6.10: Overall social network, 1950 - 1970

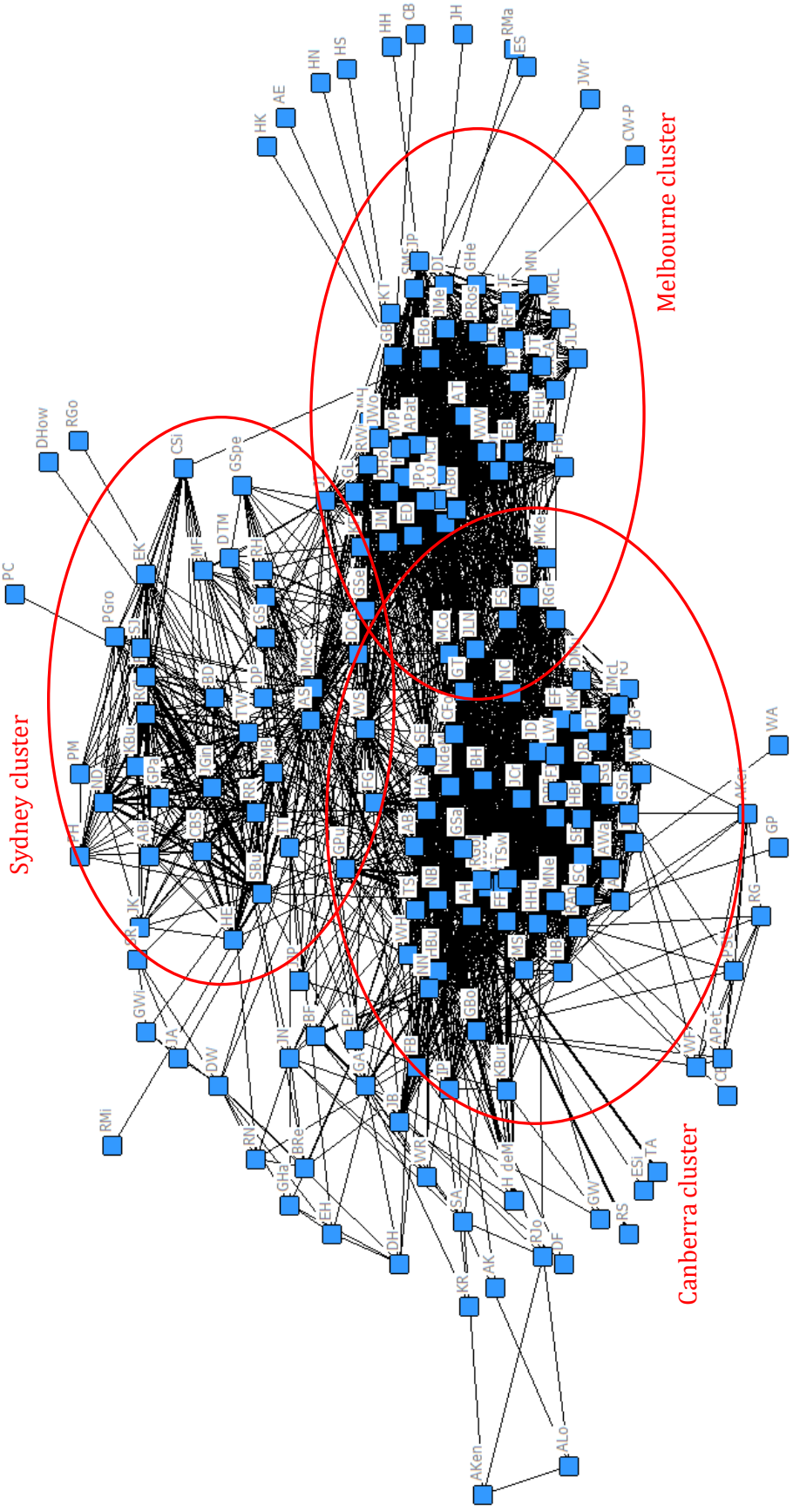


Table 6.3: Social network centrality, 1950 – 1970

	ID code	*Betweenness*	*Betweenness as % of base value*
McCarty, JW	JMcC	1125	100
Blainey, G	GB	1115	99
Boehm, EA	EBo	1042	93
Sinclair, WA	WS	898	80
Shaw, AGL	AS	805	72
Davison, G	GD	803	71
Hughes, H	HHu	758	67
Nairn, NB	NN	747	66
Encel, S	SE	719	64
La Nauze, JA	JLN	682	61
Davidson, BR	BD	610	54
Sheridan, T	TS	542	48
Barnard, A	AB	501	45
Hall, A	AH	493	44
Smith, FB	FS	475	42
Wheelwright, T	TW	463	41
Butlin, NG	NB	434	39
Butlin, SJ	SBu	420	37
Appleyard, RT	RAp	359	32
Tucker, GSL	GT	321	29

Note: Top 20 scholars, ordered by *betweenness*. *Betweenness* is measured as the proportion of shortest paths to other nodes that pass through the particular actor. As the highest-scoring scholar, McCarty's *betweenness* is taken as the base value. Average *betweenness* for the top 20 scholars is 666. For the whole sample, average *betweenness* is 67.

Local clusters were also bridged by the *AEHR*, which became the main outlet for the field's research in the 1960s. This assisted the diffusion of knowledge, fostered some sense of an 'Australian' community, and promoted the professionalism of the field. The *AEHR* was established in 1956 as the *Bulletin of the Business Archives Council of Australia*. It was an attempt to "form a bridge between business people and the academic researcher interested in the development of Australian business and the economy".[134] The name changed to *Business Archives and History* in 1962, at which time the scope of the journal widened, and editorship passed from Alan Birch to John McCarty, both at the University of Sydney. The editorial board at this time involved scholars from diverse disciplinary and geographic backgrounds. Barnard, Cochrane, Hughes and Woodruff were involved from

[134] Morgan and Shanahan, 'Supply of economic history', p.217.

1962, with other representatives from Monash, Queensland, UNE, Adelaide, Tasmania and UWA.[135]

From 1966, formal ownership of the journal passed to the Department of Economics at the University of Sydney, and the name was changed to the *AEHR*. Boris Schedvin, also then at the University of Sydney, joined McCarty as editor, and they noted that the change in name was, in part, because the journal had developed as "the specialist journal of economic history in Australia".[136] The editorial board changed as well, maintaining geographic diversity but with much greater representation by leaders in the field. Barnard continued his involvement, and Syd and Noel Butlin, Gordon Rimmer, Sinclair, Tucker and Whitehead were added.[137] A 'board of management' within the University of Sydney was also established, with Buckley, Syd Butlin, Ginswick, and Sybil Jack administering the publication. Interactions between scholars in this focus were likely motivated by *mutual interest*, with individuals forming groups in order to maximise their collective abilities and the benefits of co-ordinated action.[138]

Throughout the remainder of the 1960s, McCarty and Schedvin forged the intellectual character of the journal, encouraging a mixture of approaches from more general historical discussions, to traditional accounts of the development of industries, through to more quantitative approaches concerned with the overall sources of growth.[139] The *AEHR* provided an outlet through which geographically disparate scholars could communicate and discuss ideas, thus mediating the social enclaves that developed at each location. Schedvin has argued that through his involvement with the journal in the 1960s, he probably interacted with geographically disparate editors or contributors as much as he did with local colleagues.[140] McCarty's role as an intermediary of ideas and contacts in this community, demonstrated visually and quantitatively above, is further evidenced through his editorship of the *AEHR* at this time.

The journal also played a role in the dissemination of ideas. A number of the key debates between economic historians in the journal involved scholars with no prior social

---

[135] These other board members were not otherwise a part of this corpus. The list of board members is on the inside cover of the journal.
[136] [McCarty and Schedvin] 1966, Australian Economic History Review, 6, 2, p.203.
[137] As well as Bolton (historian), Gates (economist), JD Gould (New Zealand). The list of board members is on the inside cover of the journal.
[138] Granovetter, 'Collective behaviour'; Hardin, *Collective action*; Olson, *Collective action*; Samuelson, 'Public expenditure'.
[139] Morgan and Shanahan, 'Supply of economic history'; Pincus and Snooks, 'Editorial reflections'.
[140] Schedvin interview.

interactions.[141] The publication of articles either reporting on quantitative material, or discussing the method for determining statistics, was an important feature of the journal. Major print books were integrated through book reviews, longer review essays, or published debates. Reviews of texts authored by overseas scholars, and reports on recent global trends in economic history also provided a means through which international intellectual trends were disseminated to the Australian group.[142]

The growing specialisation of the *AEHR* was thus an important part of the maturation of this intellectual community. The journal fostered communication between geographically disparate scholars, and provided an outlet through which ideas about economic history could be discussed by scholars. While the *AEHR* was an important publication, its late transition from a business archives report to a specialist economic history journal meant that its role in the propagation of the orthodox school was relatively muted at this time.[143] The journal increased in reach and influence in the 1970s and 1980s, becoming the key publication outlet for this community. This, combined with the establishment of the Society and conference, continued to foster interactions between economic historians at the national level.

6.5. The development of a mature social community

Australia's economic history field in the 1950s and 1960s was an 'intellectual movement',[144] with the isolated interwar scholars transforming into a social and professional community. Post-WWII institutional expansion provided a favourable external environment that allowed economic historians to harness resources. This combined with collaboration to foster ties between economic historians. Greater professional organisation of the field supports Coleman's comment that the "sparse field of disconnected solitaries and mavericks was transformed into a fraternity, one that was structured around key figures and filled out with associates and research students".[145] There was an uneven distribution of social ties, with dense connections between those at the ANU. Relatively 'strong ties' meant Canberra-based scholars had social capital, which

---

[141] For example, the staples approach debate in the 1960s, involved McCarty and Abbott in Sydney, Blainey in Melbourne, and Noel Butlin at the ANU.
[142] For example, Dowie's discussion of the methodological issues and recent trends in J. A. Dowie, 'As if or not as if: The economic historian as Hamlet', *Australian Economic History Review*, 7, 1, 1967.
[143] See the discussion of the knowledge network in chapter 7.
[144] As outlined by Frickel and Gross, 'Scientific/intellectual movements'.
[145] Coleman, 'Historiography', p.21.

eased communication and the diffusion of ideas.[146] This was a key method of 'recruitment', with ANU economic historians tending to adopt the orthodox approach. The dominance of the Canberra group in the national scene meant the orthodox approach became the main intellectual current in the 1950s and 1960s.

[146] Coleman, 'Social capital'; Nieves and Osorio, 'Role of social networks'; Reagans and McEvily, 'Network structure'; Sorenson, et al., 'Complexity'; Uzzi, 'Social structure'.

7. The knowledge network, 1950 – 1970

7.1. The orthodox approach

Alongside the development of multidimensional social interactions was a new, dominant approach to the study of Australian economic history. The orthodox school is primarily attributed to the work of Noel Butlin at the ANU in the 1950s and early 1960s. This culminated in his two highly influential volumes - *Australian domestic product, investment and foreign borrowing* (hereafter shortened to *Domestic product*) and *Investment in Australian economic development* (hereafter shortened to *Investment*). In the former, Butlin compiled historical national statistics within the national income accounting framework. In the latter, Butlin used these statistics to describe the sector by sector mechanism of growth in the latter half of the nineteenth century.[1] This project was published gradually in the form of articles, monographs and conference presentations throughout the 1950s.[2]

7.1.1. Before the big bang

Like any intellectual movement, Butlin's contribution emerged partly through dissatisfaction with the earlier approaches to economic history.[3] In particular, Butlin contended with interwar analytical scholars and their emphasis on external determinants of Australia's economic development. He disagreed with the existing explanations for the 1890s Depression, arguing that overseas decline in wool prices and British investment came after the end of domestic expansion. Butlin argued that:

---

[1] Butlin, *Domestic Product*; Butlin, *Investment*.
[2] The following discussion considers this body of work as a whole. See Arndt and Butlin, 'National output'; Butlin and de Meel, *Public capital formation*; N. G. Butlin, *Private capital formation in Australia, estimates 1861 - 1900*, Canberra: Australian National University, 1955; N. G. Butlin, 'The shape of the Australian economy, 1861 - 1900', *Economic Record*, 34, 67, 1958; Butlin, 'Australian capital formation'; Butlin, *Domestic Product*; Butlin, *Investment*; N. Butlin and A. Barnard, 'Pastoral finance and capital requirements, 1860 - 1960', in Barnard, ed., *The simple fleece*, Melbourne: Melbourne University Press, 1962; Butlin, 'Distribution'; Butlin, 'Rural capital'. It is also helpful to distinguish between Butlin's *descriptive* and *statistical* texts. Descriptive texts are those that discuss the mechanisms of growth and the development of each industry from both a macroeconomic and microeconomic frame (this is mostly Butlin, *Investment*, though there is also some in Butlin, 'Australian capital formation'). The statistical texts discuss sources and methods, and provide an overview of the macroeconomic trends of the period.
[3] Frickel and Gross, 'Scientific/intellectual movements' argue that intellectual movements emerge to challenge received wisdom or dominant ways of thinking.

> "The external influences did not affect the Australian economy by initiating a slump. Moreover, the external disequilibrium was due, not to *general* disequilibrium but to a *special form of domestic* imbalance".[4]

Butlin was fairly dismissive of Shann throughout his body of work, arguing in *Investment* that Shann "does little more than summarise Coghlan". For Fitzpatrick, although Butlin conceded that his use of dialectic materialism was "special", he also commented that that he disagreed with Fitzpatrick's interpretation "on almost all its fundamental points".[5] Butlin commented that "all of us who have worked in Australian economic history owe to stimulus from and *irritation by* Brian Fitzpatrick", and that *The British Empire*, at the time, served to define the basics of Australian economic history in the minds of recent graduates, "even if not in those of more advanced practitioners".[6]

Butlin took Coghlan's approach more seriously. He and Arndt, in their co-authored article in 1950, acknowledged their debt to Coghlan's statistical material and deliberately structured their article so the two sets of estimates were comparable. However, they criticised Coghlan's lack of source information and description of methods, with their lucky access to his unpublished working sheets the only way a complete picture of either could be given.[7] Coghlan's failure to acknowledge sources or methods remained a criticism in *Investment*, with Butlin commenting that this was the key reason why the work had been disregarded by some in the economic history community. Butlin argued that this was a "tragedy", praising the "grandeur" of Coghlan's mind.[8] A quantitative emphasis, largely inherited from Coghlan, remained consistent throughout the work of the orthodox school.

7.1.2. Butlin's contribution

In *Investment*, Butlin concluded that economic growth in the latter half of the nineteenth century was initially led by pastoral investment, with manufacturing and residential construction taking the lead from the 1870s. This conclusion developed gradually, first emerging in Butlin's co-authored article with de Meel. They argued that the growth of output was led by the production of wool for export, which then stimulated capital outlays

---

[4] Butlin, *Investment*, p.407.
[5] Dialectic materialism is a key cornerstone of Marxist economic history, to which Fitzpatrick contributed to.
[6] Butlin, *Investment*, p.407, emphasis mine; Butlin, 'Shape of the Australian economy', p.10.
[7] Arndt and Butlin, 'National output', pp.46-7.
[8] Butlin, *Investment*, p.xv.

in the pastoral industry.[9] Here, though the core argument is similar, they give greater determinism to wool than Butlin does in *Investment*. The quantitative importance of the manufacturing industry was identified, but residential construction was not mentioned.[10] Residential construction emerged in the 1955 monograph, with Butlin commenting that there had been silence about this industry in the literature, and noting surprise that it was the most important item in his estimates.[11] Butlin's emphasis on construction remained reasonably consistent in later works, with his 1958 article arguing that building was the most important industry, and specifically focussing on the concentration of people into cities in his 1959 text.[12]

Consistent with his focus on non-rural industries, Butlin's work had an internalist interpretation. He concluded that domestic factors were relatively more significant to the historical development of Australia's economy. In *Investment*, Butlin argued that urbanisation and domestic manufacturing (rather than export markets) were the dominant industries in Australia from the 1870s. When this conclusion first emerged in his monograph with de Meel in the mid-1950s, it was fairly radical.[13] Butlin and de Meel seemed surprised that export trends were not as important as they initially thought, arguing that the Australian economy's "intimate links with the British economy", suggests that domestic economic activity should move with Britain's.[14] However, they found no consistent relationship between the two, and they speculated that comparable increases in the value of exports and imports over this period meant that trade may have played a more minor role in the determination of growth. This justification for focussing less on exports remained consistent in Butlin's 1958 article.[15]

Butlin's second key internalist conclusion was that structural disequilibrium in the form of speculation on the real estate market and inefficiencies in railways construction caused an initial downturn before the severe depression of the 1890s.[16] This conclusion first emerged in 1955. Butlin argued that the willingness of the British to invest was important

---

[9] Butlin and de Meel, *Public capital formation*, p.8.
[10] Butlin and de Meel, *Public capital formation*, p.10.
[11] Butlin, *Private capital formation*, p.3.
[12] Butlin, 'Shape of the Australian economy', p.17; Butlin, 'Australian capital formation', p.413.
[13] Though Hartwell had concluded the significance of urban areas and manufacturing for the colony of Van Diemen's Land in the early 19th century.
[14] Butlin and de Meel, *Public capital formation*, p.11.
[15] Butlin, 'Shape of the Australian economy', p.18.
[16] Specifically, Butlin argued that these highly unstable domestic conditions in the second half of the 1880s meant that it was "not surprising that British investors began to hesitate, even before the Baring crisis in 1890". See Butlin, *Investment*, p.351.

for economic expansion and decline in the nineteenth century, though he was adamant that this was only part of the story, and "in some respects, not the most interesting part".[17] Butlin here argued that the initiative for British investment in this period came from Australia rather than Britain, and that although railway building was made possible by increased supply of overseas funds, it was "more importantly" possible through rising local revenues.[18] Butlin's choice of language here suggests his agenda of highlighting the worth of studying Australia for itself – though he acknowledged external factors as important, they were, in his mind, not the 'most important' or 'most interesting' factors.

Butlin had a largely inductive, quantitative approach. Unsurprisingly in light of his critique of Coghlan, Butlin included an immaculate description of sources and methods throughout his main statistical works.[19] He mentioned no explicit model for the project, beyond that he was placing it within an adjusted social accounting framework. Even then, Butlin argued that "whole approach has been framed with the particular circumstances of the Australian economy […] in mind".[20] Although Butlin made small manipulations to the data – such as interpolation, extrapolating from small samples, and applying ratios across time and place – his conclusions were determined inductively from primary sources.[21] Butlin used no hypothesis-testing nor counterfactuals in these works, instead building his narrative of economic growth by applying concepts to the trends found in his evidence.

Butlin's explicit use of a theoretical framework, as shown by citations, was limited. Butlin had a low propensity to cite secondary material, with most citations used for specific quantitative data or incorporating the interpretations of other authors into his analysis. Economic theory emerged most readily through Butlin's measurement methods, with the national income accounting framework dominating. Coghlan, an early pioneer of national income accounting, was cited with the most frequency in Butlin's works, with others who engaged in similar work also drawn upon.[22] Kuznets' work on business cycles and national

---

[17] Butlin, *Private capital formation*, p.2.
[18] Butlin, *Private capital formation*, p.14.
[19] These are Butlin and de Meel, *Public capital formation*; Butlin, *Private capital formation*; Butlin, 'Shape of the Australian economy'; Butlin, *Domestic Product*.
[20] Butlin and de Meel, *Public capital formation*, p.1. Similarly, in his 1955 volume, Butlin argued that rigid or precisely defined concepts make the estimate of private capital formation impossible, so he adopted a "cruder" and more pragmatic approach. See Butlin, *Private capital formation*, p.27.
[21] This involved quantitative material for the most part, but also non-statistical sources such as committee hearings and recollections.
[22] This includes Clark and Crawford, Wilson, and ANU colleagues Barnard and Bailey.

income accounting was cited very little, and was used to compare Australia's growth with the US rather than any explicit influence over procedure or approach.[23]

Butlin's implicit theory was a mixture between neoclassical individualism and a Keynesian framework. Neoclassicism was demonstrated by Butlin's emphasis on market signals and the decision-making of rational economic actors. The Keynesian influence most likely emerged from Butlin's direct, early exposure to Keynesian economics through Nugget Coombs, Leslie Melville, and his work as a Commonwealth public servant during and immediately after WWII. At this time, he participated in "virtually a six-month continuous seminar from John Maynard Keynes telling the assembled company from the Dominions and colonies how economics should be handled".[24] More generally, Butlin's involvement in planning for post-WWII reconstruction, biased towards the *de rigueur* Keynesian public policy interventionism, may have influenced his theoretical leaning. Butlin's focus on the duality of the public and private spheres gained the most explicit expression in his work on 'colonial socialism', and remained a theme in *Investment*.[25] The focus on national income accounting, and the quantitative measurement required for any public policy intervention supported this, as did Butlin's focus on the macroeconomy and his acceptance of capital formation as the key engine of growth. Further, though Butlin's focus on market signals was neoclassical, his argument that macroeconomic instability was due to individuals behaving non-rationally (thus not properly responding to market signals) was reminiscent of Keynes' contribution on the effect of herd-behaviour on markets. Keynesianism was the dominant paradigm in the economics discipline until the 1970s.[26] Butlin's contribution was thus theoretically consistent with the contemporary economics discipline. This implicit use of economic theory was maintained by other members of the orthodox school.

7.1.3. Direct reaction and debate

Butlin's body of work in the 1950s and early 1960s was an influential contribution to the Australian economic history community. His inductive approach, while holding roots in Coghlan's quantitative tradition, was more refined, and provided a clear picture of sectoral

---

[23] See Butlin, 'Shape of the Australian economy', p.13.
[24] Foster, *Interview with Noel George Butlin*.
[25] Butlin, 'Colonial socialism'.
[26] P. Groenewegen and B. McFarlane, *A history of Australian economic thought*, London: Routledge, 1990.

economic growth in the second half of the nineteenth century. His interpretation was relatively new, emphasising internal determinants of growth. Both Butlin's approach and interpretation generated debate in the economic history community.

It was universally recognised that Butlin's work represented a significant contribution to the field. Lydall, for the *AEHR*, explicitly likened Butlin's work to other prominent national income accounting historians, arguing that "what Kuznets did for the United States, and Phyllis Deane and others for Britain, has now been done by Noel Butlin for Australia".[27] Boehm agreed that the work was significant through "the stimulus [...] given to economists and historians to contribute with Professor Butlin to a more definitive Australian historiography".[28] Labour economist Keith Hancock attributed the maturation of the field in the 1960s to Butlin's work, arguing he had made the subject "one of the most fruitful fields of research at the ANU".[29] Oral history sources have also largely confirmed the prominence of Butlin, arguing that his primary contribution was tackling big questions, providing innovative interpretations of Australia's development, and the determination and stamina to unearth a wealth of primary quantitative data.[30]

These testimonials are supported by the citation analysis. Table 7.1 and Table 7.2 present centrality scores for the citation network, indicating prominence based on the number and range of colleagues who cited the particular author.[31] The *in-bonacich power* scores in Table 7.1 indicate that Butlin was unrivalled amongst his peers, with greater prominence than any of his contemporaries, and the interwar analytical scholars. Only Coghlan's influence outstripped Butlin's. This is a particularly impressive result considering the relatively brief period that his major works were available to the community prior to 1970. Table 7.2 presents *betweenness* scores, indicating prominence based on the degree to which the researcher formed the path between different groups. A high *betweenness* score indicates that someone either cited a wide range of scholars, or were cited *by* a wide range of scholars. Butlin's *betweenness* score was almost double that of the next highest-scoring author. Combined with his high *in-bonacich power* score, this suggests this was the result of the latter. The qualitative, oral history, and quantitative sources thus concur that

---

[27] H. Lydall, 'N.G. Butlin's anatomy of Australian economic growth', *Business Archives and History*, 3, 2, 1963, p.204.
[28] E. A. Boehm, 'Measuring Australian economic growth, 1861 to 1938-39', *Economic Record*, 41, 94, 1965, p.232.
[29] K. Hancock, 'Review: Butlin, Investment; Forster, Industrial Development', *American Economic Review*, 55, 3, 1965, p.571.
[30] Boot; Davison; Dingle; Gregory; Macintyre; Pincus; Sinclair; Troy interviews.
[31] Hanneman and Riddle, *Social network methods*. See the discussion of metrics in chapter 4.

Butlin's body of work rapidly achieved status as a 'standard' text in Australian economic history.

Table 7.1: Citation centrality, in-bonacich power, 1950 – 1970

	In-bonacich power	*In-bonacich power as % of base value*
Coghlan, TA	4193	100
Butlin, NG	3752	89
Fitzpatrick, B	3713	89
Shann, EOG	3546	85
Butlin, SJ	3374	80
Wilson, R	3122	74
Rostow, WW	2882	69
Hall, AR	2521	60
Barnard, A	2470	59
Roberts, SH	2439	58
Blainey, G	2153	51
Sinclair, WA	2021	48
Wood, GL	1931	46
Hartwell, RM	1860	44
Arndt, HW	1794	43
Cain, N	1784	43
Mills, RC	1600	38
Forster, C	1561	37
Imlah, AH	1553	37
Birch, A	1475	35
de Meel, H	1444	34
McCarty, JW	1437	34
Shaw, AGL	1432	34
Cairncross, AK	1415	34
Clapham, JH	1407	34
Jenks, LH	1406	34
Schumpeter, JA	1346	32
North, DC	1335	32
Hunter, A	1321	32
Bruns, GR	1311	31

Note: Top 30 scholars ordered by *in-bonacich power* score. *In-bonacich* indicates prominence from the actor being cited by a number of otherwise disconnected authors. As the highest-scoring scholar, Coghlan's *in-bonacich power* score is taken as the base value. Average *in-bonacich power* for the top 30 scholars is 2120. For the whole sample, average *in-bonacich power* is 347.

Table 7.2: Citation centrality, betweenness, 1950 – 1970

	Betweenness	*Betweenness as % of base value*
Butlin, NG	15479	100
Butlin, SJ	8008	52
Blainey, G	7824	51
Hall, AR	4216	27
Dunsdorfs, E	3474	22
Forster, C	3274	21
Barnard, A	3187	21
Hartwell, RM	3011	19
Hughes, H	2677	17
Sinclair, WA	1757	11
Steven, MJE	1738	11
Beever, EA	1287	8
Wheelwright, EL	1045	7
Cain, N	1028	7
McCarty, JW	964	6
Bailey, JD	837	5
Boehm, EA	718	5
Dowie, JA	627	4
Birch, A	523	3
Abbott, GJ	351	2

Note: Top 20 scholars ordered by *betweenness*. *Betweenness* is measured as the proportion of shortest paths to other nodes that pass through the particular actor. As the highest-scoring scholar, Noel Butlin's *betweenness* is taken as the base value. Average *betweenness* for the top 20 scholars is 3101. Average for all authors is 2099.

While influential, not all of the attention that Butlin's work attracted was positive. In reviews, criticism centred on the construction of his statistical estimates. Lydall and Boehm both urged caution when using Butlin's estimates, due to the occasional use of small samples and filling back from census data taken every 10 years.[32] Boehm criticised Butlin's aggregation of statistics across Australia, arguing that there was quantitative and qualitative evidence to suggest economic development fluctuated between each colony.[33] There was also criticism of Butlin's underestimation of some elements of private investment,[34] and of the limited price index.[35]

Butlin's calculation of wool values generated some debate. Alan Beever, in a piece for *Economic Record*, praised Butlin's work as an "invaluable pioneering study of Australian

[32] Lydall, 'Anatomy'; Boehm, 'Australian economic growth'.
[33] Boehm, 'Australian economic growth', p.230.
[34] Boehm, 'Australian economic growth', p.213.
[35] For *Domestic Product*, see Boehm, 'Australian economic growth'. For the 1954/1955 monographs, see R. W. Goldsmith, 'Review: Butlin and de Meel, Public capital formation in Australia; Butlin, Private capital formation in Australia', *The Journal of Economic History*, 18, 01, 1958.

social accounts", though he commented that Butlin's use of official pre-Federation trade statistics overvalued wool by a considerable margin.[36] Beever recommended non-government sources, expressing the value of the wool clip in terms of the price they received at London auction houses. Butlin's reply, also within this journal, defended his use of trade statistics, and criticised Beever's use of what, at face value, appeared to be a "tantalizingly simple solution" to the very complex issue of wool values.[37] Beever gave little ground, continuing to advocate for bale values. Butlin's final reply has become infamous with members of the community.[38] In the first page and a half, Butlin argued that Beever was "wrong" on no less than 25 separate issues, and remarked to the *Record*'s editor that he did not wish to continue the discussion.[39] Although this debate was about a fairly minor part of his estimates, and hindsight has shown that Butlin was probably correct, the patronising assertion of his point here was destructive to the community. Beever recognised this, commenting that "Professor N. G. Butlin's final reply leaves little scope for fruitful comment".[40] The event was also much more aggressive than other exchanges in the community, with Fogarty and Beever engaging in a much more constructive debate about the wool industry at around the same time.[41] Subsequent anecdotal evidence has indicated that Butlin regretted his hasty response,[42] but this debate, and others like it,[43] may have contributed to the "intimidating" or "discouraging" impression of Butlin within the wider economic history community.

There was also some criticism of Butlin's internalist interpretation. Simkin was surprised by how little attention exports received within Butlin's alleged overall narrative of growth, arguing that exports were a major determination of output for any small open economy

---

[36] Beever, 'Australian wool clip', p.437.
[37] See N. G. Butlin, 'A problem in prices and quantities', *Economic Record*, 40, 90, 1964, p.233. Butlin here conceded (as he did in *Domestic Product*) that the data may be flawed and in need of revision. He recommended a number of ways forward, one of which is a project that Barnard was apparently working on at the time to determine market prices and the quality and type of wool in this period (Barnard seems to have never completed this particular project).
[38] Merrett; Hutchinson interview.
[39] N. G. Butlin, 'A tangled web', *Economic Record*, 40, 90, 1964, pp.255-6.
[40] E. A. Beever, 'Spider without a web', *Economic Record*, 40, 91, 1964, p.467.
[41] See E. A. Beever, 'The origin of the wool industry in New South Wales', *Australian Economic History Review*, 5, 2, 1965; E. A. Beever, 'Further comments on the origin of the wool industry in New South Wales', *Australian Economic History Review*, 8, 2, 1968; J. Fogarty, 'The New South Wales pastoral industry in the 1820s', *Australian Economic History Review*, 8, 2, 1968; E. A. Beever, 'A reply to Mr. Fogarty's note', *Australian Economic History Review*, 9, 1, 1969; J. Fogarty, 'New South Wales wool prices in the 1820s: A note', *Australian Economic History Review*, 9, 1, 1969.
[42] Merrett interview.
[43] See Dingle's remembrance of Butlin's engagement with staples theory. "Noel didn't want have a bar of this sort of stuff […] he was defensive and aggressive, and he wanted to knock down the alternatives". Dingle interview.

such as Australia.[44] Keith Hancock also criticised Butlin's internalist interpretation of the 1890s Depression, arguing it was "less satisfactory than many of the subsidiary hypotheses which Butlin develops".[45] The other main reaction to Butlin's internalism were texts from members of the community, discussed below, that highlighted external factors in Australia's economic development.

7.1.4. The recruitment of scholars to the orthodox approach

Butlin's contribution to Australia's economic history community in the 1950s and early 1960s was influential, challenging the prior interpretations of the analytical school, and establishing a clear approach for historical analyses of Australia's economy. As an intellectual movement, this new research program combined with generous institutional conditions and the development of joint activities to recruit other scholars.[46] This occurred primarily through social and professional interactions between scholars at the ANU. While Canberra-based scholars were generally united by a common *approach*, there was much more variation in terms of *interpretation*.

7.1.4.1 Interpretation

Although Butlin had limited overall influence in terms of interpretation, his focus on the unique, internal determinants of Australia's economic development was accompanied by a number of other internalist works at this time. Syd Butlin, in a similar way to his brother, also corrected the preceding externalist analyses of Australia's economic past,[47] arguing that internal factors such as government finance, drought, transport, labour costs, and the market for livestock were important determinants of the 1840s Depression.[48] For the 1890s Depression, Syd Butlin argued that the banking crashes of 1893 could have occurred at any time after 1870 given internal weaknesses in the banking system. He only grudgingly conceded that "the Baring crisis […] may have helped to explain the collapse of the market for Australian government bonds".[49] Schedvin also adopted a largely internalist explanation of the 1930s Depression, arguing that rather than a reaction to the

---

[44] C. G. F. Simkin, 'Review: Butlin, Investment in Australian Economic Development, 1861 - 1900', *Australian Economic History Review*, 5, 1, 1965, p.68.
[45] Hancock, 'Review: Butlin; Forster', p.573
[46] See Frickel and Gross, 'Scientific/intellectual movements'.
[47] Mostly from S. H. Roberts and Brian Fitzpatrick.
[48] Butlin, *Foundations*, chapter 10; S. J. Butlin, *Australia and New Zealand Bank: The Bank of Australasia and the Union Bank of Australia Limitied, 1828-1951*, London: Longmans, 1961, pp.279-80.
[49] Butlin, *Australia and New Zealand Bank*, p.280.

international crisis, internal determinants were crucial in the extent, timing and shape of the contraction and recovery. Schedvin acknowledged the similarity between his account and Noel Butlin's interpretation of the 1890s Depression, arguing that public investment programs created increasing debt commitments and structural instability throughout the 1920s.[50] Bailey's work argued that although British capital was brought to Australia by companies such as AML&F, they were motivated to do so by internal changes such as to land legislation.[51] Finally, Blainey argued that the mining industry developed mostly through internal factors, such as luck and improvements to science and technology.

Butlin's internalist interpretation also gave much needed attention to the study of non-rural industries, inspiring other work on this theme. Forster's contribution to the analysis of Australian manufacturing in the 1920s, and Hughes' study of the Australian iron and steel industry both examined non-rural industries from an internalist perspective.[52] Forster's edited work, to which Noel Butlin, Hughes and other orthodox school scholars contributed, also focussed on non-rural industries.[53] The manufacturing industry dominated a third of chapters, with another on services. Rural or export industries were almost entirely omitted from this volume. The importance of urban areas, and the domestic-market industries they foster, also became a major area of research for the economic history community in the 1970s and 1980s.[54] The "loud, emphatic statement" that Australia's unique economic history was important has been remembered as a one of Butlin's key contributions to the Australian economic history field.[55]

There was, however, a strong contingent of scholars that deliberately published works that balanced internal and external determinants of change. Boehm, following his earlier critique of Butlin's estimates, argued that the 1890s Depression was caused by a combination of internal structural distortions such as land speculation, as well as British inability to lend to Australia.[56] In 1963 Hall published his PhD thesis as a monograph, and

---

[50] Schedvin, *Australia and the great depression*, p.5.
[51] J. D. Bailey, *A hundred years of pastoral banking: A history of the Australian Mercantile Land and Finance Company, 1863-1963*, Oxford: Clarendon Press, 1966.
[52] Forster, *Industrial development*; C. Forster, 'Australian manufacturing and the war of 1914-18', *Economic Record*, 29, 57, 1953; C. Forster, 'The growth of the cement industry in the 1920s: A study in competition', *Economic Record*, 34, 68, 1958; Hughes, *Australian iron and steel*.
[53] Forster, ed. *Australian economic development*.
[54] See the discussion of Davison's work on urban history in chapter 9.
[55] Merrett interview.
[56] This interpretation stemmed from Boehm's conclusion that the Depression began in 1891, rather than 1889 (as Butlin had argued). By timing the start of the downswing later, Boehm argued that external factors played a role. See critique of Butlin's timing of the downswing in Boehm, 'Australian economic growth'.

has since argued that his motivation for publishing the work 12 years after its completion was because it "differed from Noel's view of the world".[57] Hall traced the factors that influenced the flow of funds to Australia, concluding that it was the interaction of events in London and Australia that explained the pattern of capital flow in this period.[58] Although Hall has since conceded that it is understandable to emphasise internal factors if you are embedded in the Australian data, he has argued that the bigger picture of Australia is certainly of an open economy.[59]

Though not necessarily directly in reaction to Butlin, other scholars also balanced internal and external explanations of Australia's development. Sinclair concluded that economic recovery in Victoria in the 1890s was encouraged more by rural than urban industries, though conceded that manufacturing was still a large sector of the economy, and not one that was entirely dependent on primary industries.[60] Sinclair has since recalled that a major departure of his work from Butlin's was to emphasise natural resources as well as non-rural industries in the economy.[61] Barnard, similarly, placed his study of the Australian wool industry in an "international context", arguing that the relocation of the wool market from London was due to a balance of internal and external factors.[62] Cain balanced domestic and foreign forces, emphasising the importance of British investors on the pastoral industry, as well as the physical characteristics such as overstocking, rabbits, drought and land legislation.[63]

McCarty, in an article for the *AEHR*, advocated for an externalist explanation of Australian economic development. He adopted the Canadian staples thesis to argue that the pace and pattern of growth, especially in the early period of British settlement, was determined externally through the development of a staple export.[64] Abbott and Nairn's edited volume had a largely externalist interpretation as well, with Abbott advocating an export-led

---

[57] Hall interview. See Hall, *London capital market*, which was based on his 1951 PhD thesis, A. R. Hall, *The London capital market and the flow of capital to Australia 1870-1914*, PhD, London School of Economics, 1951.
[58] Hall, *London capital market*.
[59] Hall interview.
[60] W. A. Sinclair, *Economic recovery in Victoria 1894-1899*, Canberra: ANU, 1956, p.5.
[61] Sinclair interview.
[62] Barnard, *Australian wool market*, p.xv.
[63] Cain, 'Companies and squatting'; N. Cain, 'Companies and squatting in the Western Division of New South Wales', in Barnard, ed., *The simple fleece*, Canberra: ANU Press, 1962; N. Cain, 'Pastoral expansion and crisis in New South Wales 1880 - 1893: The lending view', *Australian Economic Papers*, 2, 2, 1963.
[64] In this case it was the provision of private sector food to the government Commissariat for the convict workforce. See J. W. McCarty, 'The staple approach in Australian economic history', *Business Archives and History*, 4, 1, 1964.

framework.[65] Overall, this volume argued that Australia's development in the late eighteenth and early nineteenth century was due to changes in British policy and the development of an export market.[66] Blainey, in *Tyranny of distance*, adopted a similar interpretation, arguing that Australia's history had been shaped by forces beyond its borders, namely its remoteness from Britain.[67] He argued that distance influenced the development of export industries, growth of cities, flow of migrants, and investment and technology.

Interpretation thus cut across social communities. Some scholars, such as Noel Butlin, Forster, and Hughes, had social links in this period, and emphasised the internal factors in Australia's development. Others, such as Hall, Sinclair and Barnard, were part of the ANU community and had substantial social interactions with Butlin, but had more externalist interpretations. Others still, such as Schedvin and Syd Butlin, had few connections to the ANU community (though Syd was Noel's brother), and yet had almost identical interpretations that highlighted the unique features of Australia's economic past. Interpretation was thus not necessarily a unifying factor of the orthodox school, and was not an intellectual characteristic that was consistently affected by social connections in this community.

7.1.4.2 Approach

Compared to interpretation, the approach of authors was much more structured by social relationships at this time. The expansion and development of professional connections at the ANU contributed to the size and consistency of the orthodox methodology. The first study explicitly in Butlin's image was by Sinclair. As a research assistant for Butlin in the 1950s, Sinclair published a series of public capital formation estimates, helped Butlin assemble the residential and public construction estimates, and published his Masters

---

[65] This had emerged previously in G. J. Abbott, 'Staple theory and Australian economic growth, 1788 - 1820', *Business Archives and History*, 5, 2, 1965.
[66] Policy: D. K. Fieldhouse, 'British colonial policy', in Abbott and Nairn, ed., *Economic growth of Australia 1788-1821*, Melbourne Melbourne University Press, 1969; Hartwell, 'British background':Nairn, 1969 #1891. Exports: See particularly G. J. Abbott, 'Economic growth', in Abbott and Nairn, ed., *Economic growth of Australia 1788-1821*, Melbourne: Melbourne University Press, 1969; Abbott, 'Pastoral industry'; W. G. Rimmer, 'The economic growth of Van Diemen's Land 1803 - 1821', in Abbott and Nairn, ed., *Economic growth of Australia 1788-1821*, Melbourne: Melbourne University Press, 1969.
[67] Blainey, *Tyranny of distance*.

thesis (completed with La Nauze at the University of Melbourne) as an ANU monograph.[68] In his public construction estimates, Sinclair deliberately mirrored the procedure in Butlin and de Meel's 1954 monograph, arguing that the two series were directly comparable.[69] He presented the methods for calculation and source details, following the approach taken by Butlin in his main statistical works. In the monograph from his Masters thesis, Sinclair examined the Victorian economy in the 1890s. Sinclair had an inductive and quantitative approach, interpreting substantial empirical data with the aim of providing "grist to the theorists' mill".[70] Sinclair has argued that Butlin's primary influence was in the way he went about answering questions, rather than his choice of theme or interpretation.[71]

Other colleagues at the ANU adopted many of the same epistemological features of Butlin's work. Barnard, Forster, and Hall each adopted an inductive, empirical methodology.[72] Forster analysed the development of the manufacturing industry through quantitative material supplemented with some qualitative case studies.[73] His initial aim was to build detailed statistics for manufacturing, as Butlin had done for the pastoral and construction sectors, however as the project progressed he found the raw statistics had limited range and accuracy. He thus incorporated more case studies, worried that quantification alone may be "unrepresentative".[74] Similarly, Barnard used aggregated quantitative material, incorporating case studies of local selling firms after recognising that the statistics were inadequate on their own.[75] Barnard and Forster were both PhD students in the RSSS in the 1950s, and were supervised by Butlin. They then became colleagues, in the RSSS and Faculties respectively, collaborating with Butlin and other orthodox economic historians throughout the 1960s. Hall's approach was also quantitative and inductive, drawing substantially on the statistics of Coghlan and Butlin. Hall engaged with contemporary economic theory as well, writing a short theoretical postscript based on his quantitative

---

[68] Sinclair interview. The two published works from Sinclair are W. A. Sinclair, 'Public capital formation in Australia: 1919-20 to 1929-30', *Economic Record*, 31, 61, 1955; Sinclair, *Economic recovery in Victoria*.
[69] Sinclair, 'Public capital formation', p.300.
[70] Sinclair, *Economic recovery in Victoria*, p.2.
[71] Sinclair interview.
[72] Barnard, *Australian wool market*; Forster, 'Australian manufacturing'; Forster, 'The cement industry'; Forster, *Industrial development*; Hall, *London capital market*.
[73] Case studies of the cement industry, Holden Motors, Bonds' textiles, Hoskins Iron and Steel and BHP.
[74] Forster, *Industrial development*, p.viii.
[75] Barnard commented that "any effective analysis must await the completion of a great deal more statistical work". See Barnard, *Australian wool market*, p.xvii; and similar mentions of this in Barnard, *Australian wool market*, pp.181; p.199.

material. This developed an explanation for the process of capital investment in a developing country.[76]

In the 1960s there was an expansion of PhD students, particularly in Noel Butlin's economic history department at the ANU. A number of these young scholars adopted a similar approach to the orthodox school. Perhaps unintentionally (but probably not), the role of some of these PhD studies was 'plugging leaks', by specifically addressing criticisms levelled against Butlin's contribution.[77] McLean, as discussed in chapter 6, was dissuaded from his original thesis topic, to a production function analysis of the Victorian economy.[78] By adopting a similar approach, but focussing on Victoria, McLean's thesis addressed Boehm's criticism of Butlin's work – that by aggregating nationwide, Butlin missed important variations in growth between colonies.[79] Bambrick's PhD analysed the development of different price series, and surveyed the trends in these series. Her intention was to provide a guide for analysing economic growth in real terms, arguing that "'deflated by the wholesale price index' is, unfortunately, rarely good enough".[80] The cursory price series was a key criticism of Butlin's *Domestic product*.[81]

Keating's thesis did not directly address a criticism, but did provide historical time series of the workforce that he hoped would "complement the series of gross product provided by Professor N. G. Butlin and the Commonwealth Statistician".[82] Dowie, similarly, did not address a specific criticism, but attempted to do for New Zealand what Butlin had done for Australia. His thesis established the sources and methods for historical capital formation estimates, and examined the major macroeconomic features of the series.[83] Dowie, Keating, Bambrick and McLean each provided aggregate, quantitative material, and described the aggregate trends found in their data. They were thus well within the epistemology of the orthodox school. The published works that emerged from these orthodox theses are discussed in chapter 9.

---

[76] Walt Rostow, Colin Simkin, and Alexander Cairncross were notable citations of contemporary economics literature.
[77] McLean has argued that a number of PhD theses at the ANU at this time were a "natural extension" of Butlin's work. McLean interview.
[78] McLean interview. McLean, *Mechanisation in Victoria*.
[79] Boehm, 'Australian economic growth', p.230.
[80] S. Bambrick, *Australian price indexes*, Doctor of Philosophy, Australian National University 1968, preface.
[81] In particular Boehm, 'Australian economic growth'. For a similar critique of the 1954/1955 monographs, see Goldsmith, 'Review: Butlin and de Meel; Butlin'.
[82] M. Keating, *The growth and composition of the Australian work force, 1910 - 11 to 1960 - 61*, Doctor of Philosophy, Australian National University, 1967, preface.
[83] Dowie, *New Zealand investment* , pp.i-ii.

Forster's edited volume was the culmination of the ANU social relationships in the 1950s and 1960s, and was the most consistent collective expression of the orthodox methodology. As with the rest of this tradition, Forster's edited volume was unified based on approach, though chapters had divergent interpretations. Each essay examined an aspect of the macroeconomy using quantitative, statistical sources. The approach was inductive, with authors describing trends in the quantitative material rather than testing particular statistical relationships. Contemporary economic theory, concerning industrial development and the trade cycle, was incorporated in most chapters. National income accounting literature from Kuznets and Goldsmith, economic theory from Alfred Maizels and Austin Robinson, and material from Australian economists J. M. 'Pete' Garland, John Grant and Peter Karmel, were included. Table 7.3 presents descriptive statistics of citation similarity scores for the 1950 – 1970 corpus.[84] This reveals greater consistency of citations in Forster's edited volume, as compared with the whole corpus for this period.

Table 7.3: Citation similarity descriptive statistics, 1950 – 1970

	1950 - 1970	*1950s*	*1960s*	*Abbott and Nairn eds.*	*Forster ed.*
Number of authors	40	13	35	12	6
Average similarity	0.12	0.20	0.12	0.09	0.20
Median similarity	0.03	0.04	0.02	-0.02	0.014
Number of highly-correlated pairs	4	3	3	0	0
Highly-correlated as % of total pairs	1.03	3.9	0.5	0	0

Note: Citation similarity determined through *bibliographic coupling*. Similarity between authors indicates common citations (including each other's work).

The consistent approach of this volume is unsurprising, as chapter authors were in close contact and shared social ties at this time. Collaboration, as discussed in chapter 6, was eased through co-location and joint activities at the ANU, with scholars then using this book as additional focus through which they could discuss ideas. Prior to writing, these scholars already had some level of intellectual consistency, with each making contributions to Australia's economic history field that resembled the work of the orthodox school.[85] Collaboration on this volume thus reflected and consolidated the social and intellectual connections between key members of the ANU community.

[84] See Appendix F for full similarity scores.
[85] This is with the exception of Cain, whose other work more closely resembled the analytical school (see below).

While contributors generally adopted the orthodox methodology, interpretations were unbalanced and, in places, contradictory. The book started and ended with discussions of overall growth performance. Sinclair argued that the 1930s depression was largely determined by internal forces, and that the retardation of growth between 1890 and 1939 was due to the "deterioration in the productivity of capital after 1900".[86] In the final chapter, on the other hand, Butlin argued that the 1930s depression was due to a mixture of international trade trends, high unemployment, and the failure of manufacturing to provide productivity leadership. While Cain examined the macroeconomic trends of international movement of goods, services and factors of production, he provided little judgement for the extent to which this affected overall development in this period. Chapters by Forster, and Brown and Hughes on manufacturing, emphasised the size of production, the size of the domestic market, and the effect of uncoordinated government policy.[87] Finally, Dowie's contribution on the service ensemble provided only tentative conclusions about growth of employment in service industries. There was no detailed discussion of rural industries, population, finance, or government policy. The overall interpretation of the economy provided in this volume was the least satisfying aspect, with the ANU community failing to provide the cogent, sectoral growth narrative for the twentieth century that they had for the nineteenth.[88] This volume demonstrates the relative consistency of method within the orthodox school, but the divergence of interpretation. The key features of the orthodox school were thus the quantitative and inductive approach, and the engagement of scholars with contemporary economic theory.

7.1.5. The 'robustness' of the orthodox approach

The preceding discussion highlights the role of the ANU economic history group in propagating the orthodox approach in the 1950s and 1960s. Butlin, his colleagues, and his graduate students provided a consistent research agenda for this burgeoning intellectual community. Critical mass of scholars, and well-developed joint activities in Canberra

---

[86] W. A. Sinclair, 'Capital formation', in Forster, ed., *Australian economic development in the twentieth century*, Sydney: Australasian Publishing Company, 1970, pp.60, 64.
[87] Curiously, despite *The Simple Fleece*'s publication earlier in the decade, and Barnard's integration with ANU economic history community, rural industries were completely neglected, and Barnard did not contribute to the volume. This was perhaps symptomatic of research interests of the many in the community shifting from rural to urban areas.
[88] See criticisms of the coverage and interpretation of the volume by Schedvin and British economic historians Phyllis Deane. C. B. Schedvin, 'Review: Forster ed. Australian economic development', *Economic Record*, 48, 121, 1972, p.131; P. Deane, 'Review: Forster ed. Australian Economic Development in the Twentieth Century', *Economic Journal*, 81, 323, 1971, p.689.

contributed to the size and consistency of this tradition. As a result, the orthodox approach became the main intellectual current in the 1950s and 1960s. However, there is evidence to suggest that the economic historians at the ANU were not unique, or at least were simply adopting an approach that may have emerged in Australia anyway.

Hartwell, in his study of the Van Diemen's Land economy, adopted an approach similar to the orthodox school a decade before Butlin.[89] Hartwell utilised a vast quantity of previously neglected official quantitative material for the colony, supplementing this with qualitative data such as newspapers and parliamentary debates.[90] His analysis was macroeconomic and neoclassical, and he incorporated Turner's frontier thesis to explain the broad trends found in his evidence. Boehm adopted a similar methodology in the book published from his Oxford thesis on the 1890s depression. Boehm's epistemology was quantitative, drawing heavily on the primary statistics of Coghlan and Butlin, and the statistical framework of Clark and Crawford. He was also staunchly inductive, tailoring the statistics to the "peculiar features of Australia" and making claims only from what was directly observable from the quantitative material.[91] Economic theory was incorporated mostly in the form of business cycle theory from Keynes, Cairncross, Rostow, Hicks, and others. However, this was used to furnish "a logical basis" for the analysis and explain the trends found in the empirical data.[92] Boehm's approach was thus very much consistent with the orthodox school, despite not sharing any social connections with the ANU group.[93] His inspiration was distinctive, adopting the 'quantitative-historical' approach of British economic historians.[94] Boehm's PhD was supervised by Hartwell (and John Wright) at Oxford in the late 1950s.[95] Boehm's connection to the British economic history community, and Hartwell (another non-ANU scholar who adopted features of the orthodox school), may account for Boehm's approach at this time.

---

[89] Hartwell, *Van Diemen's Land*.
[90] See also Coleman's comment that "perhaps the feature that seemed most noticeable about Butlin's history to non-economists – its quantitative character – was the least distinguishing feature from other contemporary economic historians. […] Max Hartwell had already taken care to delineate the quantitative profiles of his subjects". Coleman, 'Historiography', p.19.
[91] Boehm, *Prosperity and depression*, p.25.
[92] Boehm, *Prosperity and depression*, p.1.
[93] The social network maps in chapter 6 show that Boehm, located on the far end of the Melbourne cluster, shared social ties either with other members of the Melbourne cluster, or with Max Hartwell from the Sydney cluster.
[94] Boehm, *Prosperity and depression*, p.1. This approach was characterised by the use of economic theory and extensive quantitative evidence. See chapter 5.
[95] See the discussion of PhD supervision in chapter 6.

A similar case could be made for Hughes and Hall. They were both embedded in the ANU economic history group, but their main contributions to the tradition were initially written as PhD theses overseas. Hughes studied for her PhD at the LSE, under the supervision of William Ashworth. In the book published from this thesis, Hughes thanked Ashworth and her UNSW colleagues McCarty and Schedvin, but none of the ANU economic historians.[96] Similarly, Hall's main intellectual contribution to this community was the book published from his Oxford PhD thesis, completed in 1951, well before any sort of economic history community had gathered at the ANU. Hall thanked his British supervisors Sayers and Ashton, and acknowledged the assistance of Trevor Swan in formulating the theoretical postscript.[97] In both cases, the scholar's expression of features of the orthodox approach both preceded their appointment to the ANU, and likely came from sources other than Butlin.

Syd Butlin and Schedvin also adopted an approach with some elements common to the orthodox school, but with only minimal connections to Butlin and the ANU community. Schedvin and Syd Butlin both used significant quantitative data, with Schedvin acknowledging a dependence on Coghlan and Noel Butlin's estimates, and Syd compiling his own statistical appendix for data relating to banking operations up to 1951. Their approach were inductive, with Syd in particular refusing to speculate on any issues not explicitly covered by evidence. This was to such an extent that Syd failed to make an interpretive judgement of the industry, limiting his works to describing the material he assembled. Schedvin was similarly inductive, incorporating qualitative sources to support the trends found in the quantitative material.

Both Syd Butlin and Schedvin treated their case studies chronologically, accounting with impressive detail all or most of the relevant factors in a particular event. Syd recognised this, arguing that:

> "I have elected to give my version in full detail, partly to make it unnecessary for others to rediscover the facts, but mainly because my object has been to display a set of institutions coming into being and in operation, and, on first telling, that story requires detail."[98]

---

[96] Hughes, *Australian iron and steel*, p.vii.
[97] Hall, *London capital market*, preface; p.192.
[98] Butlin, *Foundations*, p.3.

Schedvin adopted a similar method, with a lively reconstruction of political institutions, policy and policy-makers surrounding the depression of the 1930s. This differed slightly from the sectoral analysis of the ANU group. Rather than constructing their analysis or explaining their primary material using contemporary business cycle or sectoral growth theory, Syd Butlin and Schedvin instead focussed on detailed, contextual reconstructions of historical events.[99] This narrative style prompted Arndt to review Schedvin's contribution as "historian's rather than economist's economic history".[100] Similar reviews of Syd Butlin's work commented that his approach was a "comprehensive, reliable, detailed, and fully documented *account*" (rather than *analysis*, for instance) of the Australian monetary system.[101] Schedvin has referred to this slight deviance from the orthodox method as 'empirical descriptivism', and has argued that he thought Noel may have believed he was "infected" with Syd's descriptive approach.[102]

Despite these small nuances, Syd Butlin and Schedvin both held many of the characteristics of the orthodox school, namely an inductive, quantitative approach focussed on the macroeconomic dimensions of Australia's past. There is evidence that their approach emerged on a separate trajectory from those at the ANU, with influence likely flowing from Syd to Schedvin, with very little opportunity for Noel to influence either of them. Schedvin studied for his PhD at the University of Sydney, and held an appointment there in the 1960s. He thanked Syd, who was the Dean of the Faculty of Economics at the time, for "constant encouragement",[103] and they would go on to co-author the second volume of the *War economy* in the 1970s. At the same time, both had limited connections with Noel Butlin or the ANU crowd in this period, despite Syd being Noel's elder brother.

These examples – Hartwell and Boehm, Hall and Hughes, and Schedvin and Syd Butlin – indicate that there were scattered instances the orthodox approach that emerged either before the formation of the ANU community, or on a separate trajectory. Responsibility for the emergence of the orthodox approach can thus not wholly be placed on Noel Butlin's shoulders.

---

[99] Indeed, Kuznets or other business cycle theorists do not emerge at all, explicitly or implicitly, in either Schedvin or Syd's work.
[100] H. W. Arndt, 'Australia and the Great Depression, by C. B. Schedvin. ', *The Australian Quarterly*, 43, 2, 1971.
[101] C. Simkin, 'Review: Butlin, Foundations of the Australian monetary system', *Historical Studies*, 6, 22, 1954, p.226. Emphasis mine.
[102] Schedvin interview.
[103] Schedvin, *Australia and the great depression*, p.xiv.

Broader intellectual context explains the development of the orthodox approach. Australian economic history had a long quantitative-inductive tradition, with Coghlan's pioneering efforts characterised by the large collection and description of empirical material.[104] Sinclair has argued that quantification was always a key characteristic of Australian economic history because colonial statistics "were just so good compared to the rest of the world".[105] The quantitative nature of the orthodox school was thus one of its least surprising features, with Butlin's contribution simply the determination and stamina to marshal the primary quantitative material.[106] Rod Maddock has agreed, arguing that Butlin's legacy was "the work he did himself…that huge slog of just getting out a basic set of numbers…that huge piece of infrastructure that we all use regularly".[107]

National income accounting, and interest in business cycles and sectoral growth theory was a global movement within both economics and economic history at this time. Kuznets' continued efforts to develop historical national accounts for the US was matched by similar work in France, the UK, Spain, Belgium, India, and elsewhere in the post-WWII decades.[108] Keynesian analysis, emphasising sectoral growth and business cycles, was also a norm for the economic history field at this time.[109] Though the work of the orthodox school was undoubtedly distinctive from what came before, it was largely in line with contemporary developments in the international economic history field. Butlin was amongst the first to translate these newer developments to the antipodes, but to speculate the counterfactual, it could easily have been imported through other avenues.[110]

Finally, the orthodox approach was propagated through generous institutional conditions. The expansion of scholars and students, generous research funding, and the development of various professional activities at the ANU provided a platform through which Butlin could recruit others to this approach. These favourable structural conditions have been identified as a necessary condition for the emergence of any intellectual movement,[111] and

---

[104] See chapter 5.
[105] Sinclair interview.
[106] This point has been made by Maddock, Schedvin and McLean in oral history interviews.
[107] Maddock interview.
[108] Aerts and Bosma, 'Low countries'; Hudson, 'Economic history in Britain'; Iriarte-Goni, 'Spanish economic history'; Lamoreaux, 'Beyond the old and the new'; Lyons, et al., ed. *Reflections*; Parthasarathi, 'Indian economic history'.
[109] Boldizzoni and Hudson, *Global economic history*.
[110] For example, through those that studied for their PhD overseas and adopted an approach similar to the orthodox school – such as Boehm, Hall, and Hughes.
[111] See Frickel and Gross, 'Scientific/intellectual movements'.

arguably decreased the responsibility any individual scholar had for the emergence for this school of thought.

7.1.6. Assessing the orthodox school

Thus, it was through a combination of individual, institutional, and social efforts that the orthodox school came to dominate Australian economic history in the 1950s and 1960s. Its prominence in this community has been noted by oral history sources, though scholars generally attribute this tradition to Butlin alone, rather acknowledging the diverse context in which this school was produced. Qualitative analysis, similarly, confirms the dominance of the orthodox school. Table 7.4 presents the proportions of texts in the corpus that fell within the three major intellectual traditions, based on the qualitative classification of texts and with each text weighted for its number of pages.[112] The orthodox approach involved the substantial use of aggregated quantitative material, and inductive analysis. Analytical texts used qualitative sources and a realist presentation. Texts in the deductive tradition were those that tested a particular theory, which may have been through advanced statistical analysis. While these were 'typical' cases, the qualitative categories are broad, and there were variations between texts in each approach.

The classifications indicate that orthodox texts formed the majority of published works at this time, averaging 62% of the sample. Statistical and deductive work, and the approach of the analytical school averaged only 12.5% and 23% of the corpus respectively. Table 7.5 presents these proportions for articles in main journal – the *AEHR* – that have been included in this corpus. It shows that the journal played a relatively small role in propagating the orthodox approach, with only 27% of the *AEHR*'s pages adopting the orthodox approach in the 1960s. This may have been because of the fledgling nature of the journal for most of this period, and its transition from a business archives report to a specialist economic history journal. While the journal published a number of key debates, orthodox scholars generally chose to publish monographs, or to contribute to economics journals. Key pieces by Butlin, Forster and Sinclair,[113] Boehm's review of Butlin's estimates, and the wool-values exchange between Butlin and Beever, were all published in

[112] See Appendix D for these classifications.
[113] Arndt and Butlin, 'National output'; Butlin, 'Shape of the Australian economy'; Butlin, 'Australian capital formation'; Butlin, 'Prices and quantities'; Butlin, 'A tangled web'; Forster, 'Australian manufacturing'; Forster, 'The cement industry'; C. Forster, 'Australian unemployment, 1900 - 1940', *Economic Record*, 41, 95, 1965; Sinclair, 'Public capital formation'; W. A. Sinclair, 'The tariff and manufacturing employment in Victoria, 1860 - 1900', *Economic Record*, 31, 60, 1955.

the *Economic Record*.[114] In the 1970s and 1980s, growing professionalisation of the journal made it a key outlet for works of economic history. The *AEHR*'s contents more closely resembled the mix of approaches in the overall corpus in the latter decades.

Table 7.4: Proportion of pages in each intellectual tradition, whole corpus

	Pages in sample	*Analytical*	*Orthodox*	*Deductive*
1950s	3,896	9.50%	65.40%	14%
1960s	6,696	30.50%	60%	11.6%
1950 – 1970	10,592	22.80%	62%	12.5%

Note: Broadly, the *analytical* tradition was characterised by the use of qualitative sources and a realist presentation. Texts in the *orthodox* tradition used aggregated quantitative material and inductive analysis. *Deductive* texts tested a particular theory, which may have been through advanced statistical analysis.

Table 7.5: Proportion of pages in each intellectual tradition, AEHR

	Pages in sample	*Analytical*	*Orthodox*	*Deductive*
1950s	28	100%	0	0
1960s	422	54.70%	26.80%	22.20%
1950 – 1970	450	57.60%	25.10%	20.80%

Note: Broadly, the *analytical* tradition was characterised by the use of qualitative sources and a realist presentation. Texts in the *orthodox* tradition used aggregated quantitative material, and inductive analysis. *Deductive* texts tested a particular theory, which may have been through advanced statistical analysis.

Citation analysis indicates the most influential scholars for this community. Table 7.1 presents the top 20 scholars in order of *in-bonacich power*, with higher scores indicating the author was cited frequently by a range of scholars. Very high scores for Coghlan, Noel Butlin, Fitzpatrick, Shann and Syd Butlin, indicate their role as 'standard' texts of economic history throughout this period. Coghlan and Butlin's prominence may also derive from their role in establishing the quantitative infrastructure for the field. The importance of quantitative data for orthodox economic history means that citations of Coghlan and Butlin may not have been simply intellectual influence, but due to a paucity of other data sources. Australian economists such as Arndt, Wood, Wilson and Mills also emerge with high prominence, as do economists from overseas such as Douglass North, Walt Rostow, Joseph Schumpeter, Alexander Cairncross, JH Clapham, and LH Jenks. Citations of historians were more sparse, with Stephen Roberts and Alan Shaw the main scholars integrated into the published work of the economic history group at this time. Citations

[114] Beever, 'Australian wool clip'; E. A. Beever, 'In defence of bale-values', *Economic Record*, 40, 90, 1964; Beever, 'Spider without a web'; Boehm, 'Australian economic growth'; Butlin, 'Prices and quantities'; Butlin, 'A tangled web'.

are a key method for determining the main scholarly influences on a particular text.[115] This network suggests that, overall, the economic history group took relatively more cues from the contemporary economics discipline at this time.

Citation similarity scores reveal changes in work incorporated into the corpus over time. Table 7.3 presents descriptive statistics for these similarity scores. There was an average similarity of 12% for the 1950s and 1960s. However, this diverged between relatively high similarity of 20% in the 1950s, and lower similarity in the second decade. There were eight highly-correlated pairs of scholars in this period,[116] though this also diverged between a relatively high proportion of similar authors in the 1950s, and decreasing to 0.5% of total pairs in the 1960s. Greater average similarity, and more highly-correlated pairs in the 1950s indicates the emergent nature of the field at the time. There were relatively fewer authors, and secondary texts, to draw on in the 1950s, which may have contributed to congruence in citations between economic historians. More scholars, greater diversity of research topics, and a growing body of literature may have contributed to lower levels of similarity in the 1960s.

Though valuable for determining overall trends and main influences, the citation analysis is a poor indicator of intellectual traditions for this community. Citation similarity scores, presented in Appendix F, indicate that there was some similarity between texts written in the style of the orthodox school. Boehm, Bailey, Beever, Butlin, Cain, Hall, and Sinclair (in various configurations) adopted elements of the orthodox methodology and had quite high citation similarity. However, this grouping is incomplete. Other orthodox scholars, such as Dowie, Forster, Hughes, Schedvin and Syd Butlin had low levels of citation similarity, despite sharing a similar approach. Schedvin and Syd Butlin, in particular, had a congruent approach, shared multidimensional social connections, but had very different citation patterns. This low citation similarity of 0.079 may have been due to different case studies, with Syd focussing on the nineteenth century banking industry and Schedvin examining the 1930s Depression. Citation similarity may have also indicated disagreement, as was the case with Boehm's critique of Butlin's estimates, or the Butlin-Beever exchange over wool values. These examples illustrate the multiple social, intellectual and positioning functions that citations hold, and the difficulties associated with using them alone to determine intellectual trends.

---

[115] Kaplan, 'Citation behavior'; McWilliams, et al., 'Who is talking to whom?'; Sharplin and Mabry, 'An alternative ranking'; Siler, 'Citation choice'; Small, 'Concept symbols'.
[116] 'Highly-correlated' here is defined as citation similarity of 0.7 or above. See Appendix F for the full citation similarity matrix.

In the past, Butlin has been praised as the seemingly sole source of the quantitative, macroeconomic reorientation of Australian economic history in the 1950s and 1960s.[117] This emphasis has largely neglected the contribution of institutional developments and social interactions in consolidating this intellectual tradition. The preceding discussion, and that of chapter 6, highlights the role that co-location, PhD studies, joint activities, and collaboration played in the propagation of the orthodox school, with Noel Butlin 'recruiting' colleagues and students to this intellectual movement. However, Butlin's role should not be overstated. Broader contextual factors allowed the formation of the economic history community, with the expanding higher education sector providing favourable conditions in which to build a community of scholars. Features of the orthodox school also emerged elsewhere, due to the long quantitative tradition from Coghlan, and global convergence on national income accounting. Thus, while Butlin had a unique role in the propagation of this tradition, he was also a scholar in the right place at the right time. The ANU *community*, rather than a single scholar, reoriented the dominant approach to Australian economic history.

7.2. The beginnings of intellectual plurality

Though the orthodox school certainly dominated the written output in Australian economic history in the 1950s and 1960s, there were other instances where different methodologies were adopted by scholars. Ted Wheelwright engaged in quantitative studies of Australian firms from the perspective of political economy. A more deductive approach was adopted by McCarty, Dunsdorfs, and Davidson, with the testing of various theories of Australia's historic development. There was also a contingent who maintained elements of the analytical approach, with a realist, narrative-based method, and a greater use of qualitative sources. Although these smaller intellectual traditions lacked the output, personnel, and reach to rival the orthodox school, some elements formed the basis of intellectual plurality in the 1970s and 1980s.

[117] See Coleman, 'Historiography'; Lloyd, 'Analytical frameworks'; Lloyd, 'Economic history and policy'; Schedvin, 'Midas and the merino'; Sinclair, 'Economic history'.

7.2.1. Quantitative political economy

Wheelwright contributed to the economic history community through his study of Australian firms, gathering data on shareholders and board members of major Australian companies.[118] His approach was quantitative, with a procedure that very closely resembled the statistical works of the orthodox school. Wheelwright described the sources and methods of data collection, and then presented the extensive quantitative material. However, these works fundamentally differed from the orthodox school, as they were built around neither neoclassical economic categories, nor contemporary economic theory. The discussion was a vehicle to discuss power in Australian society rather than to provide insights about production, efficiency, or other economic concepts.

Wheelwright cited precisely none of the other economic historians working at the time, and was only cited minimally by other authors. Wheelwright's citation similarity scores, presented in Appendix F, demonstrates this, with negative scores with most other authors in this corpus. This indicates that there was no relationship, or a small inverse relationship, between Wheelwright's citation patterns and those of other economic historians. Wheelwright also had limited connections to the community through social interactions, with co-location ties only with members of the Sydney group. Although citation analysis, as argued, is not very good for determining adherents to the orthodox school, in this case it confirms Wheelwright's social and intellectual groupings. Wheelwright's work was only minimally influential at this time, though it did furnish a quantitative basis for the historical political economy tradition, led by Wheelwright and Ken Buckley in Sydney, in the 1980s.[119]

7.2.2. Deductive approaches

McCarty, Dunsdorfs and Davidson adopted a more deductive approach in this period, using their particular case studies to test various theories. McCarty published an article in the *AEHR* in 1964 which applied the Canadian staples thesis to the study of Australian economic development in the first half of the nineteenth century. By attempting to fit Australia's experience within a theory developed for another context, rather than using economic theory to explain trends found in data, McCarty's approach fundamentally

---

[118] E. L. Wheelwright, *Ownership and control of Australian companies: A study of 102 of the largest public companies incorporated in Australia*, Sydney: Law Book Co of Australasia, 1957.
[119] See the discussion of political economy approaches in chapter 9.

differed from the work of the orthodox school.[120] Blainey, similarly, used qualitative sources and realist elements to 'test' staples thesis, a theory of Australian mineral discovery, and the effect of distance on Australia's development.[121]

Dunsdorfs' also adopted a deductive approach. His study of the wheat industry included both an historical and a statistical section.[122] In the latter, Dunsdorfs used regression analysis inspired by contemporary agricultural economics to test correlations between area-yield and factors such as rainfall and wheat prices.[123] Though assembling statistical, macroeconomic material was certainly within the purview of the orthodox school, using it to deductively test the validity of economic theory was not. Davidson's work on Australia's agricultural industry and historical geography similarly used deductive economic analysis in the form of benefit-cost calculations of agriculture in certain areas, and the economic effects of drought.[124] Davidson built his framework for comparison from *a priori* assumptions about the operation of the industry and the economy.

The most unified criticism of these works from within the Australian economic history community was of the deductive approach. The *AEHR* ran a series of follow-up articles to McCarty's initial staples analysis, from a diverse range of contributors. Noel Butlin criticised McCarty's approach for being "deliberately abstract"; Blainey, although he reviewed the externalism of the piece largely favourably, commented that a North American approach may not be "entirely fit for export"; and Abbott commented that the application of a ready-made theory to a situation from which it was not derived was to "abandon historical methods altogether".[125] Oral history sources have agreed that there was some antagonism between the orthodox scholars and McCarty. Dingle has argued that Butlin "attacked" McCarty's work on staples thesis, and Schedvin has recalled that although an externalist interpretation was appropriate, the staples thesis was not the right vehicle.[126] Alan Birch made similar criticisms of Dunsdorfs' deductive work, commenting that although any economic historian must be guided by a particular model, there is

---

[120] Oral history sources from Sinclair, Dingle, Blainey, and Schedvin have confirmed this.
[121] G. Blainey, 'A theory of mineral discovery: Australia in the nineteenth century', *Economic History Review*, 23, 2, 1970; Blainey, *Tyranny of distance*; G. Blainey, 'Technology in Australian history', *Business Archives and History*, 4, 2, 1964.
[122] Dunsdorfs, *Australian wheat-growing industry*.
[123] Dunsdorfs, *Australian wheat-growing industry*.
[124] B. R. Davidson, *Australia, wet or dry? The physical and economic limits to the expansion of irrigation*, Melbourne: Melbourne University Press, 1969.
[125] N. G. Butlin, 'Growth in a trading world: The Australian economy, heavily disguised', *Australian Economic History Review*, 4, 2, 1964, p.158; Blainey, 'Technology', p.126; Abbott, 'Staple theory', p.153.
[126] Dingle/Davison; Schedvin interviews.

danger of neglecting the study of the past by concentrating too much on the trends in regressions.[127]

Criticism over approach, and the dominance of orthodox methodology rendered these deductive works minimally influential in this period. McCarty's application of staples thesis was not widely pursued, in its pure form, by either himself or others; the use of regression analysis like Dunsdorfs' work did not emerge elsewhere until the 1970s (and was not directly inspired by him);[128] and Davidson's work, although historical in scope, did not engage with (or have very much impact on) the economic history community.[129] The citation analysis reveals very low levels of formal influence from these works, with Table 7.1 indicating only modest *in-bonacich power* scores for McCarty, Davidson and Dunsdorfs.[130] While McCarty's work did not enjoy much prominence in terms of citations, this approach has been remembered as influential by members of his local community.[131] Sinclair, for instance, recalled that his exposure to the staples theory through McCarty meant that he adopted a "modified" version of this theory in his later work.[132]

The influence of McCarty and Dunsdorfs emerged through their integration of a range of material in their own work. Table 7.2 indicates that their prominence in the community was much higher if measured by *betweenness* rather than *in-bonacich power*.[133] *Betweenness* scores measure prominence based on the researcher being the path between different areas in the network. A high *betweenness* score may indicate someone who cited a wide range of scholars, or were cited *by* a wide range of scholars. The former may have been the source of McCarty and Dunsdorfs' high *betweenness*. While they were outside the norm of the economic history community, they did explicitly connect this literature to the international economic history community, and the agricultural economics disciplines respectively. By measuring prominence in an intellectual community not just by how much they are cited, but their role in connecting domains of knowledge, highlights previously neglected scholars in this community.

---

[127] A. Birch, 'Review: Dunsdorfs, The Australian Wheat-Growing Industry, 1788–1948', *Business History Review*, 31, 03, 1957, p.338
[128] More deductive work instead emerged through a more general connection to the economics discipline, and the US economic history community. See chapter 9.
[129] Davidson's citation analysis demonstrates this. The only economic historian Davidson cited was Dunsdorfs, and his work was not cited by any of the economic historians in this period.
[130] McCarty made it into the top 30, but Dunsdorfs and Davidson did not.
[131] Sinclair; Dingle/Davison; Merrett interviews.
[132] Particularly W. A. Sinclair, *The process of economic development in Australia*, Melbourne: Cheshire, 1976. Sinclair interview.
[133] Dunsdorfs at 5th place, McCarty at 15th in Table 7.2.

7.2.3. The analytical school continues

There was a small group of scholars who adopted an approach similar to the analytical school of the interwar period. Cain, Bailey, and Blainey notably adopted a realist and narrative-based approach. Bailey's work focussed on a single firm in the pastoral industry – the AML&F Company – with considerable use of qualitative company records, and the discussion of individual company decision-makers.[134] Similarly, though Blainey did discuss the development of the mining industry as a whole, a significant portion of his work was devoted to specific case studies.[135] *Tyranny of distance* was also less quantitative than the orthodox approach, incorporating correspondence, diary entries, and descriptions of real actors and events.[136] Cain, when analysing the pastoral industry, focussed on the experience of 10 specific stations in the western division of New South Wales, rather than aggregating discussion of the industry as a whole.[137] Bauer, in *The simple fleece*, examined the experience of specific sheep stations in Northern Australia.[138]

Chapters in Abbott and Nairn's edited volume also adopted a realist, narrative-based approach, with chapters focussing on documentary sources and detailed case studies.[139] Walsh, Hainsworth, and Steven each published articles similar to their chapters in the *AEHR*.[140] Also in the journal, pieces by Birch, Ginswick, Hughes, Blainey, Cain, and Fogarty adopted the analytical approach. There was little, if any, aggregation or abstraction in these works. They included some quantitative material, but it was used sparingly to demonstrate points in the narrative. The analysis was inductive, with very little use of

---

[134] Bailey, *Pastoral banking*.
[135] Blainey, *Rush that never ended*.
[136] For example, see his description of Captain Cook. See Blainey, *Tyranny of distance*, p.9.
[137] Cain, 'Companies and squatting'; Cain, 'Companies and squatting'.
[138] F. Bauer, 'Sheep-raising in Northern Australia', in Barnard, ed., *The simple fleece*, Canberra: ANU Press, 1962.
[139] Chapters by Nairn, Joyce, Robinson, Stevens, Shaw, Hainsworth, Walsh, and Rimmer were very realist. However, as an edited collection with a small level of social integration and imposed consistency on the part of the editors, approach between chapters varied. Chapters by Fieldhouse, Hartwell, and Fletcher were more aggregated and abstracted.
[140] G. P. Walsh, 'The geography of manufacturing in Sydney, 1788-1851', *Australian Economic History Review*, 3, 1, 1963; M. J. E. Steven, 'The changing pattern of commerce in New South Wales, 1810-1821', *Australian Economic History Review*, 3, 2, 1963. Steven's article was the same as her chapter - Syd Butlin gave Abbott and Nairn permission to re-print the *AEHR* piece. See Abbott and Nairn, ed. *Economic growth of Australia*, p.4.

theory,[141] and conclusions were based around qualitative sources rather than the use of aggregated quantitative data.

Because of the dominance of the orthodox school, and its 'revision' of the older, analytical approach, there was recognition that these texts were a bit 'dated'. As a result, criticism generally centred on the poor engagement with broader macroeconomic trends, and the absence of economic theory. Although Blainey's work on mining was praised for its "spirited, forcible, and colourful" prose, Barnard argued that the text lacked substance.[142] He commented that Blainey let scholarship suffer in an attempt to tell a good story, criticising the lack of footnotes, questioning his appointment to a senior position in economic history, and commenting that "to allow the unexplored hypothesis to gain […], an aura of simplicity and heightened plausibility is a distinct disservice to history".[143] Similarly, Sinclair criticised the realist elements of Abbott and Nairn's edited volume, arguing that the weight attributed to "traditionally heroic figures" was exaggerated.[144] Members of the orthodox school argued that while Bailey's text was "authoritative and lively",[145] and "well devised and executed",[146] a more "rigorous and critical analysis could have been made".[147] Both Barnard and Boehm criticised Bailey's lack of engagement with economy-wide issues, with Barnard arguing that Bailey did not take advantage of the opportunity to develop a more general picture of the industry.

Table 7.4 indicates that the analytical methodology formed only 23% of the corpus in the 1950s and 1960s. This was partially due to the dominance of the orthodox school and the division between orthodox work and the history discipline. Analytical economic history, with more cues to the method of the historian, found very little space in an orthodox-dominated community. The approach found a home in the *AEHR*, forming the majority of

---

[141] Fogarty's piece engaged with McCarty's adaptation of the staples approach, but disagreed with the import of theory. He argued that McCarty's analysis did not give adequate consideration of the role of government in economic development. See J. Fogarty, 'The staple approach and the role of the government in Australian economic development: The wheat industry', *Australian Economic History Review*, 6, 1, 1966.
[142] A. Barnard, 'Review: Blainey, The rush that never ended', *Australian Economic History Review*, 4, 1, 1964, pp.85-6.
[143] Barnard, 'Review, Blainey', p.87.
[144] W. A. Sinclair, 'Review: Abbott and Nairn, Economic growth of Australia 1788-1821', *Economic Record*, 46, 116, 1970, p.601.
[145] E. Boehm, 'Review: Bailey, A hundred years of pastoral banking', *The Economic History Review*, 20, 2, 1967, p.407.
[146] A. Barnard, 'Review: Bailey, A hundred years of pastoral banking', *Historical Studies*, 12, 48, 1967, p.600.
[147] Boehm, 'Review: Bailey', p.408.

articles published in the journal in the 1960s.[148] The fledgling nature of the *AEHR* at this time, and its initial purpose as a business archives report, made it open to the approach of the analytical school. Analytical economic history, in the journal and in the whole corpus, remained an important minor current of published work.

Authors adopting the analytical methodology lacked influence in this period. Cain and Blainey were cited relatively frequently by other members of this community, with *in-bonacich power* scores similar to their orthodox peers.[149] However, other analytical scholars, particularly those that contributed to the *AEHR*, were not cited widely by other economic historians. In a similar way to the deductive tradition, prominence for analytical scholars emerged through *betweenness*. Table 7.2 indicates that Steven, Cain, Bailey, and Birch were amongst those with the highest *betweenness* in this community. Blainey had particularly high *betweenness*, ranking just after Noel and Syd Butlin. This indicates that the contribution of analytical scholars to the economic history community was by connecting this domain of knowledge to other areas.

7.3. Australian economic history as an intellectual movement

The 1950s and 1960s was a period of maturation and professionalisation for Australia's economic history field. The period largely conformed to the dynamics of an 'intellectual movement', with institutional growth, the development of social and intellectual leaders, and the recruitment of scholars to a dominant intellectual tradition.[150] This was the orthodox school, characterised by quantitative, inductive analysis, and integration with contemporary economic theory. The approach emerged most notably through the work of Noel Butlin, and dense co-location ties, generous institutional conditions, relatively constrained joint activities, and collaborative relationships encouraged the convergence of scholars on this methodology. Though the role of Butlin and the ANU community was substantial, elements of the orthodox school emerged independently. Intellectual and institutional context partially made this 'turn' in economic history inevitable.

Meanwhile, the expansion of scholars in Sydney and Melbourne increased research output in these locations, though not all of this additional work was in the image of the orthodox

[148] Table 7.5 shows that the analytical approach formed 55% of pages published in the *AEHR* in the 1960s.
[149] See in-bonacich power scores in Table 7.1.
[150] As outlined by Frickel and Gross, 'Scientific/intellectual movements'.

school. While only minimally influential in this period, some of these alternative approaches formed the basis for the intellectual plurality that followed in the 1970s and 1980s. The 1950s and 1960s were thus characterised by a more 'disciplinary' pattern of growth for Australia's economic history community. The field had scholars, students, institutional space, professional structures, and access to resources. However, this was accompanied by a narrowing of acceptable approaches to the subject, with active discouragement of methodologies that differed from the orthodox school. The integration of quantitative material and economic theory gave the field greater links to the economics discipline, while at the same time creating a rift with mainstream historical practice.

The 1970s and 1980s were primarily characterised by decentralisation. The development of a series of newer universities and joint activities outside of Canberra contributed to strong social ties between scholars in Sydney, Melbourne, Adelaide and Perth. Intellectual trends followed, with social and collaborative relationships between scholars in the same university or the same city contributing to a number of well-developed perspectives of Australia's economic past.

Part three: The spatial placement of ideas

Following the development of the 'orthodox school' in earlier decades, the 1970s and 1980s were characterised by the decentralisation of social interactions and the development of a number of distinct intellectual trends. Appointments continued to expand, with economic historians largely placed within separate departments in economics or business schools. Economic history departments were accompanied by joint activities, which encouraged collaboration and communication between scholars in each university, but limited contact to those in other places. The development of economic history groups, particularly in newer universities, led to lower relative prominence for the Canberra group. Though the ANU continued to be very important in the social network, multidimensional ties also developed among scholars in Melbourne and Sydney. The 1970s and 1980s were thus characterised by a series of relatively autonomous social enclaves.

Dense communication and collaboration within each local environment contributed to the 'spatial placement of ideas' in these decades. By choosing to surround themselves with like-minded collaborators, social ties reflected and reinforced the approach of each author. In the 1950s and 1960s, there was general agreement from scholars on the approach of the orthodox school, with broad differences in interpretation. In the 1970s and 1980s, the orthodox school remained prominent, but there was a divergence in practice between Canberra and Melbourne. Connections to economists and to the US approach to the subject transformed the orthodox school into a more statistical and deductive form by those at the ANU. In Melbourne, ties to a diverse range of scholars contributed to a broad approach to the subject that integrated more with other domains in the humanities and social sciences. In Sydney, fragmentation between the various universities, and a greater proportion of scholars interested in overseas topics meant this group was a more minor player in the Australian economic history community. The UNSW community was particularly associated with the US cliometrics movement, using microeconomic labour data to test hypotheses.

Interpretations also expanded at this time, with frameworks such as comparative economic history, the staples thesis, the small open economy model, and institutional economic history gaining prominence. In these cases, interpretation was structured by collaboration, with involvement in joint projects meaning that scholars incorporated a common framework. As collaboration was, in most cases, location-based, interpretation was thus largely associated with local environments. In particular, comparative economic

history, in the style of the *Annales* School was particularly (though not exclusively) characteristic of those in Melbourne, and focus on the role of government in the economy was dominated by those in Canberra.

The social and intellectual fragmentation of the field was mediated, to some degree, by the continued development of national infrastructures. The growing influence of the *AEHR*, and the establishment of the Society and conference diffused ideas between the various centres, and co-ordinated the activities of the group at the national level. However, as more flexible and 'open' infrastructures, these national activities were not able to completely overcome the spatial placement of social and intellectual ties at this time.

Chapter 8 focusses on the main professional activities of Australian economic historians in the 1970s and 1980s. It examines the expansion of scholars, the development of joint activities, and the motivations for, and effects of, collaborative ties. Social network analysis has been used to map co-location and collaboration. Oral history sources complement the social networks by providing additional details of the nature and effects of social interactions in this community.

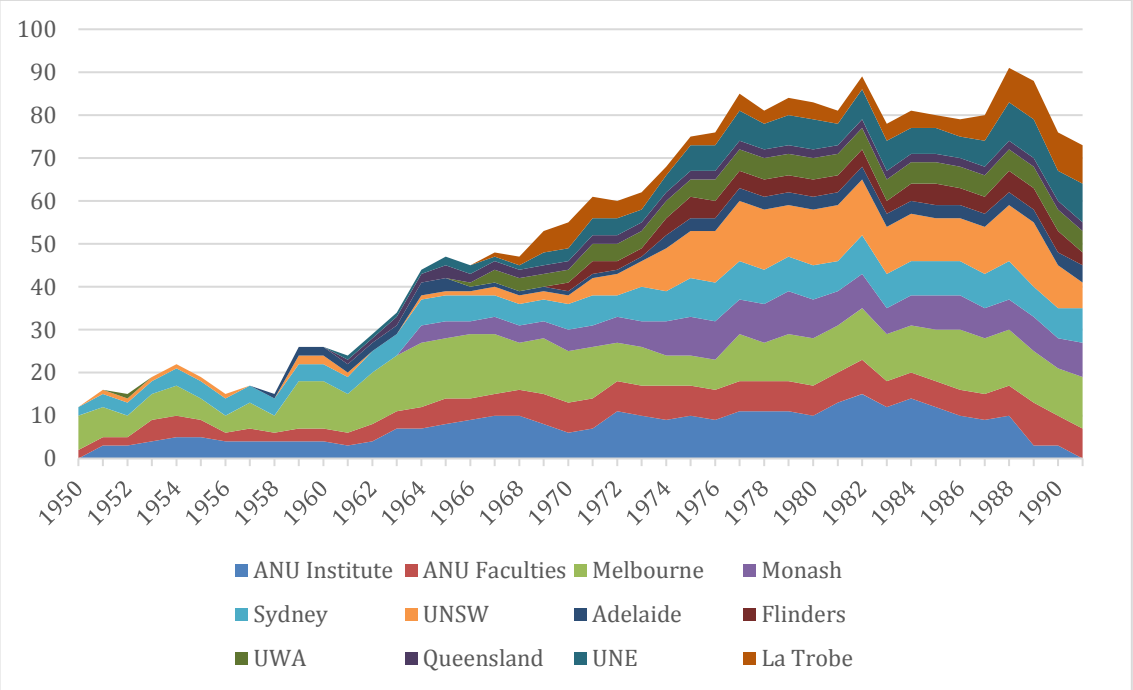
Chapter 9 examines the development of various intellectual trends, outlining the importance of institutions and social connections for the approach and interpretation of Australian economic historians. The knowledge network is analysed qualitatively, with texts classified based on *approach* and *interpretation*. Oral history sources and quantitative citation analysis complement the qualitative discussion, providing insight about the intellectual debts of scholars. The interaction of social ties, institutional arrangements, and intellectual trends highlights the contextual dependence of knowledge in Australian economic history, and the development of this field over the long run.

8. The social network, 1970 – 1991

8.1. Continued expansion of economic historians

The number of economic history scholars continued to expand throughout the 1970s, peaking at around 1980 and hovering at that level for the rest of that decade. Figure 8.1 shows that, having expanded primarily in the 1950s and 1960s, the 'older' universities (ANU, Sydney, and Melbourne) more or less maintained their staff numbers throughout later decades. The expansion of economic history appointments in the 1970s was the domain of newer universities, with UNSW leading Monash, Flinders, UNE and La Trobe in the appointment of economic historians. This was primarily the result of the growth of newer universities throughout the 1960s.[151]

Figure 8.1: Expansion of appointments in economic history, 1950 - 1991



Note: Based on details of economic history appointments in Appendix B.

Economic history grew at a faster rate than either economics or history in the 1970s and 1980s. Table 8.1 reports the average annual growth rate of economic history staff compared to the economics and history disciplines, and total university staff. Reports of staff numbers for economics and history groups aggregates the 1970s and 1980s, so it is

[151] These newer universities were established out of the 1957 Murray Report following increases in student numbers in the immediate post-WWII period. See the discussion of university expansion in chapter 5.

difficult to compare growth rates between decades. However, taking an average of the 1970s and 1980s gives economic history a growth rate of approximately 3%, which outperforms the averages for either economics or history. This is slightly less than the average for total growth of university staff (around 4% over the 1970s and 1980s). This suggests that although there were challenges within economic history from the 1980s, in terms of staff numbers it was doing relatively well compared to parent disciplines.

Table 8.1: Expansion of staff in economic history and related disciplines

	1950s	*1960s*	*1970s*	*1980s*
Economic history	11.7%	12.1%	5.3%	1%
Economics	16.8%	12.4%	-	1.9%
History	21.4%	9.4%	-	2.2%
Total university staff	10.5%	18.9%	5.6%	2.5%

Note: Average annual growth rate of staff in each group. Calculated as total growth rate over each period, divided by the number of years.
Economic history figures are based data in Appendix B.
Economics figures are based on Maxwell, 'The rise and fall'. These data are for 1956 – 1965 (quoted in the 1950s column here), from 1966 – 1975 (quoted in the 1960s column), and from 1975 – 1989 (quoted in the 1980s column).
History discipline figures are based on Macintyre and Clark, *The history wars*. p.26. These data are for 1954 – 1960 (quoted in the 1950s column), for 1960 to the early 1970s (quoted in the 1960s column), and for the early 1970s to 1989 (quoted in the 1980s column).
Total university staff figures are based on Hugo, 'Demographic trends'.

8.1.1. The characteristics of the continued expansion of scholars

Much of the expansion of economic history appointments at this time was due to continued general growth of student numbers, and the requirement that first-year economics students take a unit in economic history. Oral history evidence generally concurs that compulsory economic history units supported the expansion of economic historians in separate departments.[152] Because of this, the growth of the field was largely dictated by the external higher education environment: the structure of business and economics degrees, the expansion of the university sector, and the number of students interested in economic history.

The rapid expansion of students and universities in this period also meant that domestic supply of scholars could not keep up with demand. The ANU was the main site of PhD studies in the 1960s, and while it did produce a number of prominent scholars, some of

[152] UNSW: Shergold interview. Faculties: Cornish; Jackson; Boot interviews. Flinders: Sinclair interview.

these students left the main economic history community.[153] The remaining economic history graduates from this time – Merrett, Pincus, McLean, Jackson, Maddock, Sheridan, Snooks, and Pope – were not able to fill all the positions that became available throughout the 1970s. As a result, new hires were generally young, underqualified scholars from overseas. While a predominantly younger staff may have been good for social cohesion,[154] it also created a 'loose' system of appointment. Jackson has argued that although many in the Faculties were supportive colleagues and good teachers, they were not necessarily prolific scholars. Boot similarly commented that he may not have warranted his position in the Faculties at first, due to his initial lack of qualifications.[155] For UNSW, Shergold has similarly recalled that the rapid growth of the department meant that he did not submit a formal application, and did not sit an interview. Instead, he was offered the position because his supervisor at the LSE, Charlotte Erickson, was in close contact with Gordon Rimmer.[156] Neither Boot nor Shergold held a PhD when they were first appointed, they instead completed their degrees throughout their first few years in Australia.

The destination of most overseas appointments was Sydney, with the UNSW community in particular hiring from Britain. This was partly due to Rimmer's role as God Professor of the department – a British graduate himself, Rimmer purposefully recruited from UK universities.[157] Shergold had studied at Hull and Illinois; Nicholas in Iowa, Toronto, and Hull; Perkins at Hull; Meredith at Exeter; and Inkster at East Anglia.[158] Dyster had studied for his PhD in Toronto, and Ambirajan had begun (and indeed finished) his career in India. Thus, of the quite large group of economic historians at UNSW, only Dave Clark and David Pope had studied in Australia. Overseas hires generally maintained their interest in overseas topics, or transitioned to Australian topics after quite some time. This meant that, in the 1970s at least, most of the research conducted at UNSW was on overseas topics. In Sydney, there was also a substantial number of overseas hires, with Aldrich and Tipton

[153] Macarthy, de Marchi and Waterman took positions overseas, Pursell and Bambrick moved into the economics discipline, and Keating left academia for a career in the public service.
[154] Jackson recalling a fairly lively sports scene between the economics, economic history, and anthropology departments in the Faculties. Shergold and Nicholas also noted that the youth of the UNSW group made for a lively social scene. See Jackson; Shergold; Nicholas interviews.
[155] Boot interview.
[156] Shergold interview.
[157] Shergold; Hutchinson interviews.
[158] University calendars generally list the place each staff member took their qualifications. See UNSW Calendars.

arriving from the US, and Drabble and P. K. Hall trained in the UK.[159] This left Buckley, Ginswick, and Wotherspoon as the 'Australianists' in the University of Sydney department.[160]

Elsewhere, overseas hires were most frequent at newer universities. At UNE, Boot was appointed for two years when he first arrived in Australia. Neale, Falkus and Morris-Suzuki hailed from the UK, Cage had studied in the US and Scotland, and Diehl was from the Netherlands. Henning was the lone domestically-trained economic historian at UNE, studying in Adelaide and Melbourne.[161] At La Trobe, Frost had studied in Australia and published on Australian topics, while most other members of that group had arrived from the UK and Europe.[162] In the Faculties, Martina, Gagg and Boot were hired from the UK. Flinders hired Australianists Sinclair and Snooks, as well as Vamplew (who had trained in Scotland) and Shlomowitz (who trained in South Africa, the UK, and the US).[163] The RSSS and University of Melbourne groups hired predominantly domestically-trained scholars.[164] Dingle and Spenceley were the main overseas hires in the Monash group, with the others having some combination of overseas and domestic training.[165]

In some cases, overseas hires transitioned to publishing on Australian topics. The most prominent example was the 'Convict Workers' project at UNSW, with Shergold arguing that "it wasn't until you had a group of economic historians who clearly realised they were going to stay in Australia, […] that then you start to think 'well if I'm here, I'm going to start doing some Australian work'".[166] Shlomowitz and Dingle transitioned to Australian topics quite quickly.[167] Dingle argued that his background in British economic history was "impossibly insular", so it was perhaps his collaboration with Merrett that eased the

---

[159] See University of Sydney Calendars. Aldrich studied at Emory and Brandeis universities; Tipton at Stanford and Harvard. Drabble studied at Cambridge and University of London, and Hall trained at the University of London.
[160] 'Australianists' refers to those who studied Australian topics.
[161] See UNE Calendars.
[162] See La Trobe staff lists.
[163] Flinders Calendars.
[164] The ANU's identity may have developed some implicit expectation to hire Australianists to the research schools. The aim of the institution was to develop excellence in Australian research. See Foster and Varghese, *Australian National University*.
[165] Trace studied in the UK and US before his PhD at the University of Melbourne, and Vicziany studied in Western Australia, and then at the University of London for her PhD.
[166] Shergold interview.
[167] Dingle arrived at Monash in 1966, and published a piece on Australia in 1972: A. E. Dingle and D. T. Merrett, 'Home owners and tenants in Melbourne 1891-1911', *Australian Economic History Review*, 12, 1, 1972. Shlomowitz arrived in 1975, and published an article on Queensland's Melanesian labour in 1979: R. Shlomowitz, 'The search for institutional equilibrium in Queensland's sugar industry 1884-1913', *Australian Economic History Review*, 19, 2, 1979.

transition to Australian topics.[168] Shlomowitz applied his US toolkit to the Australian case of Melanesian indentured labour, with the common methodology potentially easing his transition between topics.

For many scholars though, their overseas training and research interests meant they published very little Australian economic history. A high proportion of overseas hires, and the general ambivalence of these hires to research on Australian topics, restricted the size and intellectual capacity of the field. This trend, particularly at the two main universities in Sydney, also meant that despite having amongst the largest personnel in the country, the presence of Sydney scholars in the knowledge network was relatively limited.[169] Conversely, a lower proportion of overseas hires meant that the Melbourne and Canberra communities were more prominent in the field, simply because they had a greater proportion of scholars working on Australian topics.[170]

8.1.2. Co-location network trends

In the 1970s and 1980s, expansion of economic historians continued, with a number of new recruits from Britain and North America. This was combined with long tenures, with most scholars appointed within separate departments of economic history. The largest and most stable department was at UNSW, with the group attracting between 10 and 15 appointments between 1975 and 1990.[171] Key UNSW scholars were present in the department for between 14 and 20 years throughout the 1970s and 1980s.[172] Long tenures were the norm elsewhere, with all key members of the Faculties department present for the entirety of the 1970s and 1980s.[173] At the University of Melbourne, Beever, Blainey, Thompson, Harper, and Fogarty held appointments from the late 1950s to the late 1980s. Similarly in the RSSS, the key economic historians – Butlin, Cain, and Barnard – were each present at the ANU from the 1950s to the late-1980s. At Flinders, Snooks, Shlomowitz and Vamplew formed the bulk of the department throughout the 1970s and 1980s, as did Sheridan and McLean for the University of Adelaide. At UWA, the core group

[168] Dingle/Davison interview.
[169] See the discussion of the knowledge network in chapter 9.
[170] Hutchinson has argued that the higher proportion of Australianists in Flinders and Melbourne meant they were much more prominent in the community.
[171] See Appendix B, EH appointments.
[172] Rimmer was present the longest at 22 years, and Pope the shortest at 14 years. See Appendix B.
[173] Forster, Cornish, Jackson, Gagg, Martina and Boot were all present between 1970 and 1991, with the exception of Jackson, who moved to the University of Queensland in 1990. See Appendix B.

of economic historians was stable between 1971 and 1991.[174] Kenwood and Lougheed were the lone pair of economic historians within the economics group at the University of Queensland between 1965 and 1991. At the University of Sydney, Buckley, P. K. Hall, Wotherspoon and Drabble were each appointed in the early 1970s, and remained there until the late 1980s.

As a result of expanding staff and long tenures, the co-location network is characterised by dense ties clustered around the main universities. Figure 8.2 presents the overall co-location network between 1971 and 1991. It indicates a large, dense cluster of ties in Canberra, and other clusters between those at the University of Melbourne, University of Sydney, UNSW, and Monash. Figure 8.3 shows the Canberra cluster in more detail. This indicates those who were embedded in the ANU community, including Noel Butlin, Gregory, Barnard, Forster, Cornish, Tucker, and Cain. Those located in Adelaide do not form a distinctive cluster, instead Figure 8.3 shows McLean, Snooks, and Pincus on the edge of the ANU cluster.

UWA formed a distinctive sub-region to the left of the Canberra cluster in Figure 8.2. The main connection from UWA to the rest of the economic history community was through Statham's appointment to the ANU in the 1980s. The isolation of the Western Australian scholars has been highlighted by Statham, who commented that "between the [other] universities there was a lot more interaction, and it was quite clear we missed out on all of that".[175] Those at UNE also formed a sub-region, with some connection to ANU scholars through McLean's position there in the early 1970s. Those at the University of Queensland – Kenwood and Lougheed – held connections to the UWA group through Bolton and to the ANU cluster through Jackson.

[174] Appleyard, Statham, Davies, Vanden Driesden. See Appendix B.
[175] Statham interview 39:10.

Figure 8.2: Co-location network, 1971 - 1991

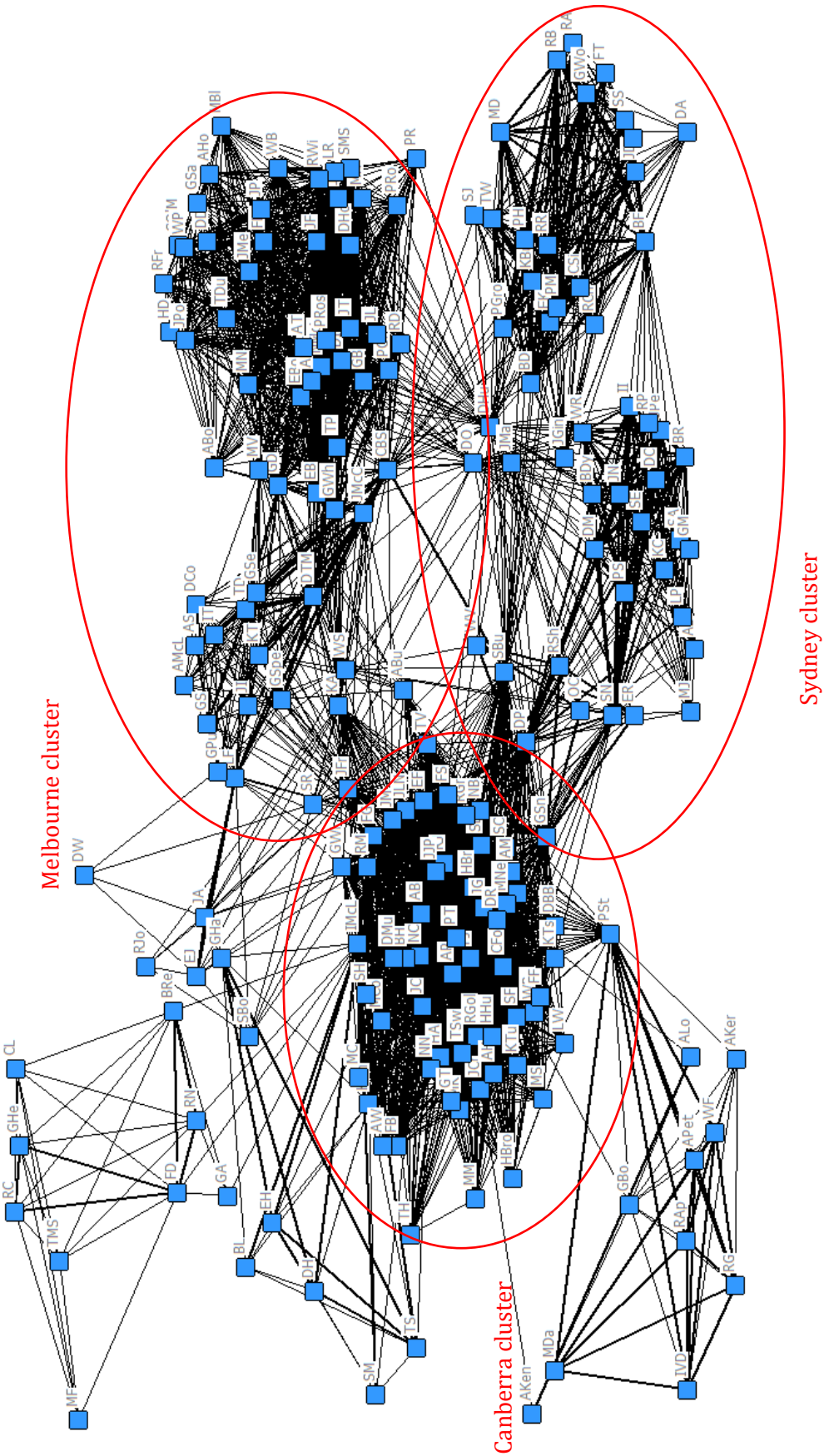


Figure 8.3: Co-location network, 1971 - 1991, Canberra cluster

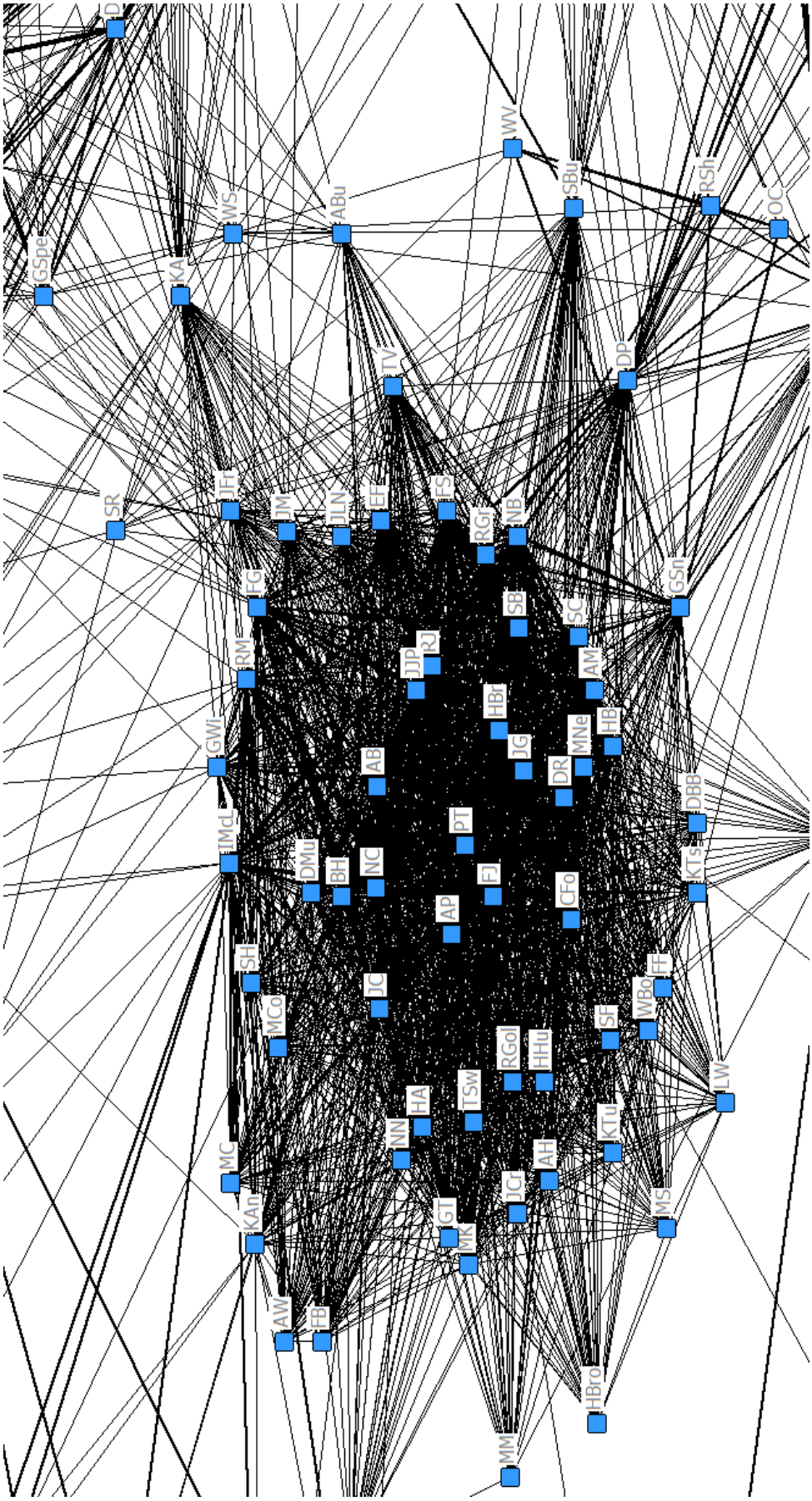


Figure 8.4: Co-location networks, 1971 - 1991, Melbourne cluster

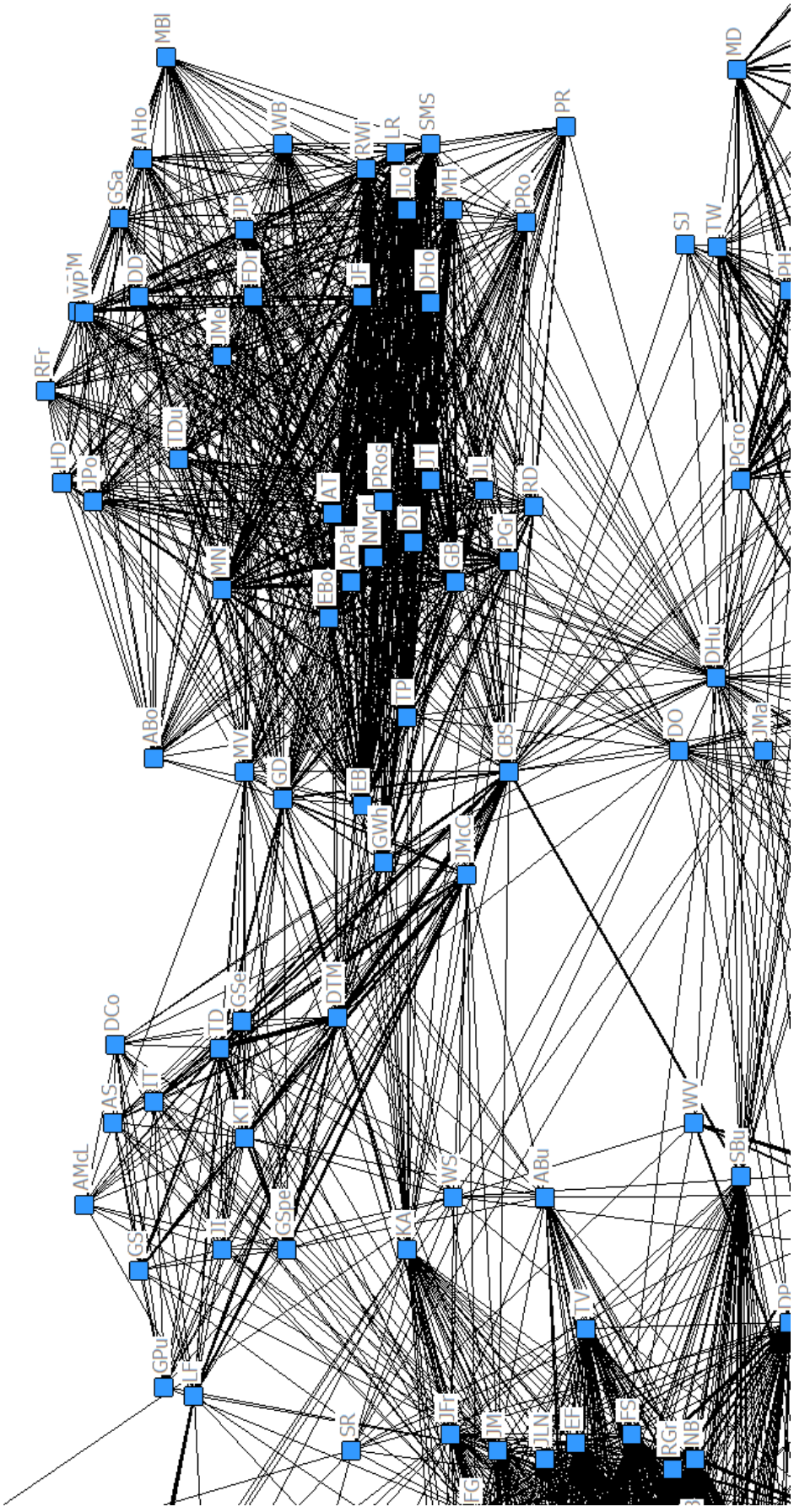
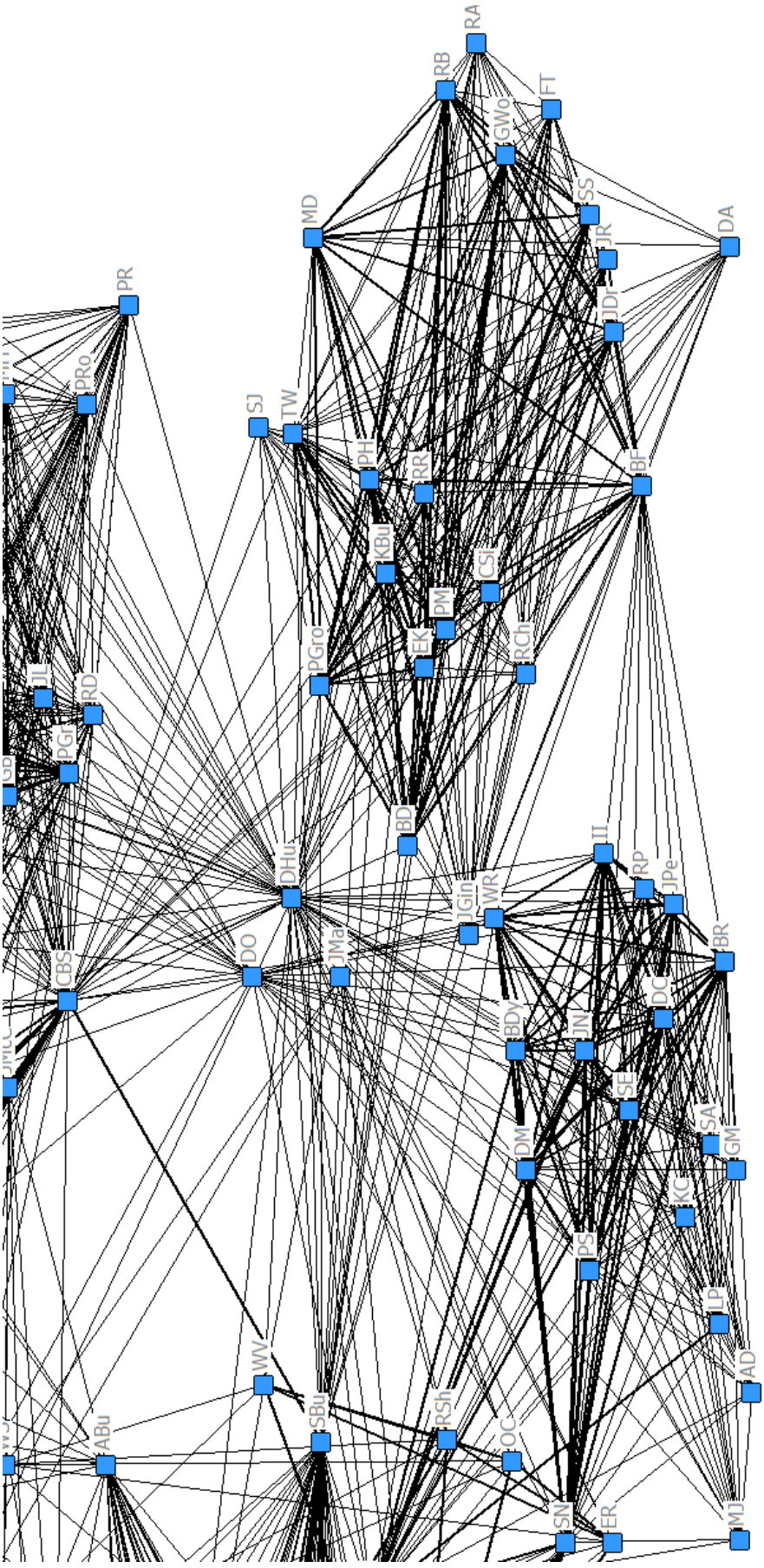


Figure 8.5: Co-location network, 1971 – 1991, Sydney cluster



The co-location networks also indicate the extent to which there was movement between universities in the same city. While the clusters for the University of Melbourne and Monash are each distinctive, there were a number of scholars who were appointed to both institutions in this period. Figure 8.4 shows the Melbourne cluster in more detail, with the Monash group on the left, and the Melbourne group on the right. Davison, Merrett, Schedvin, and Vicziany were the main links between Monash and the University of Melbourne in the 1970s and 1980s. La Trobe lacked the numbers to form its own cluster, with scholars instead subsumed into other regions. Frost is located on the edge of the Monash cluster due to his PhD studies there in the late-1970s, Sinclair is located between the ANU and Melbourne regions, and Anderson, Whitehead and Eric Jones are located near the ANU and UNE regions. Co-location connections between La Trobe and the ANU were fostered through the movement of Maddock and Withers from Canberra to La Trobe in the 1980s. The separation between Monash and Melbourne on the one hand, and La Trobe on the other is confirmed by the oral history evidence. Merrett has argued that although Sinclair was out at La Trobe for a while, "we didn't have much to do with them".[176]

Although they were located in the same city, Sydney and UNSW formed distinct co-location clusters. Figure 8.5 shows this region in detail, with the UNSW group on the left, and the University of Sydney group on the right. Though they are located near one another in the overall network, there was actually very few links between the institutions. Fletcher's appointments to both institutions in the 1970s, and Hutchinson's appointments in the 1980s, formed the sole conduit between the two groups. This has also been confirmed by oral history evidence, with Nicholas, Shergold and Hutchinson commenting there was very little contact between UNSW and the University of Sydney.[177] In Adelaide, the two main universities did not share any co-location ties, with Figure 8.2 showing University of Adelaide scholars located to the left of the ANU cluster, and those at Flinders on the right. Though there was no official movement of researchers, Pincus has argued that contact was good on an individual level.[178]

There were relatively fewer co-location connections between scholars in different cities. Nicholas and Pope connected the UNSW and ANU groups; Syd Butlin connected the University of Sydney to the ANU; Schedvin connected the University of Sydney group to

---

[176] Merrett interviews.
[177] Nicholas and Shergold argued that there were occasional seminars, but that it was difficult to get together. Hutchinson has argued that there was very little contact between the two institutions, despite their relative proximity. Hutchinson; Nicholas; Shergold interviews.
[178] Pincus has argued that while at Flinders, "we had good connections with [McLean]".

the Melbourne community; Hutchinson moved between UNSW, Sydney, Flinders and Melbourne; and Sinclair connected those at Flinders, Monash, and La Trobe. Overall, the co-location network in this period was characterised by institution-based and, to a lesser extent, city-based clusters, with relatively fewer connections between them. This pattern of co-location ties indicates those whom the economic historians would have more chance of interacting with.[179] Geographic proximity also structured joint activities such as seminars and PhD supervision, as well as partially structuring collaboration trends. These foci determined much of the communication between economic historians at this time.

Those who did move between cities formed bridges between the major clusters, assisting the transfer of contacts and communication between different groups. This influence in the network is reflected in *betweenness* scores, shown in Table 8.2, with larger scores indicating the actor formed more paths between otherwise disconnected nodes.[180] Hutchinson's very high *betweenness* score reveals her capacity in this role in the 1980s. Hutchinson held a number of short-term appointments during her early career in the 1980s, as this was "kind of all there was going at the time".[181] Hutchinson formed a primary visual conduit between the cities of Sydney, Melbourne and Adelaide in Figure 8.2, completing her PhD at UNSW before short-term appointments at Flinders and the University of Melbourne, and then an ongoing appointment at the University of Sydney from the late 1980s. Although Hutchinson was not a major figure in the field in terms of publications at this time, her co-location trends suggest she may have facilitated communication between groups. Others who held positions in multiple cities also had high *betweenness* scores, including McLean, Schedvin, Alford, Syd Butlin, Statham, Davison, Pincus, Jackson, Nicholas, and Pope.

[179] Sorenson, et al., 'Complexity'; Sorenson and Stuart, 'Syndication networks'; Hedstrom, 'Contagious collectives'.
[180] Hanneman and Riddle, *Social network methods*.
[181] Hutchinson interview.

Table 8.2: Centrality, co-location network 1971 - 1991

	ID	*Betweenness*	*Betweenness as % of base value*
Hutchinson, D	DHu	2629	100
McLean, IW	IMcL	2107	80
Butlin, SJ	SBu	1795	68
Alford, KA	KA	1755	67
Schedvin, CB	CBS	1667	63
Pope, D	DP	1543	59
Statham, P	PSt	1304	50
Mackie, JAC	JM	1257	48
Pincus, JJ	JJP	962	37
Freebairn, JW	JFr	823	31
Jackson, RV	RJ	661	25
Davison, G	GD	650	25
Snooks, G	GSn	477	18
Gruen, F	FG	460	17
Diehl, FW	FD	446	17
Whitwell, GJ	GWh	446	17
Oxley, D	DO	404	15
Buck, A	ABu	390	15
Nicholas, S	SN	360	14
Vicziany, AM	MV	308	12

Note: Top 20 scholars ordered by *betweenness*. *Betweenness* is measured as the proportion of shortest paths to other nodes that pass through the particular actor. As the highest-scoring scholar, Hutchinson's *betweenness* is taken as the base value. Average *betweenness* for the top 20 scholars is 1006. Average for the whole sample is 87.

8.2. Getting the gang together

Co-location ties were transformed into social interactions through a number of institution-based activities that brought scholars together to discuss ideas. While these joint activities were exclusively conducted at the ANU in the 1950s and 1960s, in the latter decades there was a decentralisation of joint activities. Tea rooms expanded, and they operated as valuable 'open' infrastructures that encouraged discussion across disciplinary boundaries. Seminars, PhD supervision, and separate departments of economic history, on the other hand, were relatively 'closed' infrastructures that reinforced connections between economic historians, to the exclusion of those in other groups. These were a positive social force, increasing the level of communication and collaboration between members of the field, and the consistency of published work. However, these activities also contributed the insularity of the community and the divergence in intellectual characteristics between various enclaves.

8.2.1. Tea room

The tea room continued to be a key social institution for the community. Scholars in the Faculties have recalled their tea room was a particularly positive space in the 1970s and 1980s, contributing to social cohesion and exposure to ideas from a number of different disciplines.[182] Boot in particular has argued that this diverse contact was "essential for economic history". The tea room in the RSSS has been remembered as a more earnest and professional institution, with intense, but important discussions between scholars.[183] At Monash, Schedvin has recalled contact with the economists through the tea room, with Davison and Dingle agreeing that the tea room contributed to the very "lively" and "interesting intellectual environment" in the ECOPS faculty at the time.[184] As in the 1950s and 1960s, the nature of tea rooms meant that these foci had quite low constraint. This decreased the probability of strong ties between scholars associated with this focus, but facilitated contact with diverse domains.

8.2.2. Seminars

The appointment of economic historians to separate departments meant their seminars were generally 'closed' meetings. They were thus constrained foci that reinforced the connections between members of the economic history community. Seminars were again a frequent activity at the ANU, with co-operation between the Faculties and RSSS on a seminar series throughout the 1980s. Maddock and John Gagg, Tsokhas and Forster, and Jackson and Pope were amongst the pairs who organised the series throughout the 1980s, with a wide range of presenters from the ANU and elsewhere.[185] These seminars were related to published work, with scholars presenting papers that would then be published as articles, books, or book chapters. For example, Barnard and Butlin presented estimates of public and private capital formation, Forster presented on wages and unemployment in the Depression, Shlomowitz reported primary results for labour market outcomes of Melanesian labour, and Pope and Withers presented on immigration and

[182] Jackson; Boot interviews.
[183] Jackson; Davison interviews.
[184] Dingle/Davison interview.
[185] See memos about changes to seminar programs. ANUA 62/115.

unemployment.[186] The ANU joint economic history seminar was thus an important event in which ideas for this community were shared.

The joint seminar was the main form of interaction between economic historians in the RSSS and the Faculties.[187] Jackson argued that from the perspective of those in the Faculties, it was a "terrific" experience as it was the main way they would have access to distinguished visitors. However, it may have also caused friction, with scholars apparently attending seminars "armed" for discussion.[188] Pincus has recalled a seminar Cornish gave on the postwar unemployment White Paper, in which Noel sat up the back of the room snoozing, then piped up and said "this is rubbish, I was present".[189]

Seminar traditions expanded at other locations in the 1970s and 1980s. At UNSW, Nicholas has argued that seminars were an important part of the collegiality and social cohesion of the department.[190] There was also a relatively short-lived joint seminar between the economic history groups at UNSW and the University of Sydney in the 1970s. Hutchinson has recalled that Jon Perkins was the driver, though Nicholas has attributed it to his own initiative.[191] At Monash and the University of Melbourne, separately, each economic history group held seminars, with McCarty remembered as a particularly valuable contributor to the Monash seminars.[192] There was also co-operation between the various Melbourne-based universities, with a joint seminar between the economic historians at Melbourne, Monash, and La Trobe. There were between one and four joint seminars a year,[193] with Dingle recalling that the structure was generally two papers – one in the afternoon, then they would have a meal and would come back for a second paper. The second paper was apparently considerably more "lively".[194]

---

[186] Barnard and Butlin: joint seminar in March 1981; Barnard solo in December 1982 and November 1985. Forster: November 1981; April 1987. Shlomowitz: February and June 1981; Pope and Withers: October 1983. ANUA 62/113; 115; 117; 126; 129; ANUA 230-310.
[187] Cornish; McLean; Statham interviews.
[188] Jackson interview, though he argues that this was a positive in his case, and it meant you could be sure of "proper critical discussion".
[189] Pincus interview.
[190] It was relatively informal as well, with Nicholas commenting that they had to start scheduling seminars earlier in the day so staff members wouldn't get drunk beforehand and abuse visiting scholars.
[191] See also Shergold interview. He argued that it only went for a few years in the late 70s, early 80s.
[192] Blainey; Dingle/Davison interview. Frost correspondence, 03.01.2017.
[193] Merrett reckoned it was more sporadic, Dingle argued there were "three or four a year". Blainey also recalled attending seminars, but only when someone famous was visiting. Merrett; Dingle/Davison interview.
[194] Dingle/Davison interview.

While on paper they were open to all, seminars at the ANU, UNSW and Monash were only rarely attended by non-economic historians. In a similar way to the ANU seminars of the 1960s, this was generally because seminars were associated with a separate department of economic history. McLean has criticised this institutional structure for the ANU, where "each of these small departments felt like they had to have their own seminar".[195] Documentary sources certainly support this, with very few scholars presenting who were not either Australian or international economic historians. There may have been some outreach at an individual level, with Jackson recalling giving seminars in history, McLean attending economics and philosophy seminars, Maddock attending seminars in the politics group, Schedvin recalling attendance at Melbourne's economics seminars, and Davison commenting that he generally attended the Monash economic history seminars from his vantage in the history group. However, the institutional separateness of economic historians meant seminars were generally constrained foci. This fostered strong connections among economic historians, but limited their exposure to those from other disciplines.[196]

8.2.3. PhD supervision

There was a decentralisation of PhD studies at this time, with relatively fewer students trained at the ANU. McLean, Pope, Wells, and Snooks graduated from the RSSS department in the 1970s and 1980s.[197] Hutchinson and Oxley graduated from UNSW, Whitwell and Duncan from Melbourne, Frost from Monash, and Statham from UWA. The social and intellectual effects of PhD supervision remained largely consistent with the earlier period, with mentorship functions fostering ongoing ties between students and members of staff at each location.

There may have been greater interaction between students and supervisors in the 1970s and 1980s, with no instances (as there were in the 1960s) of 'hands off' supervision. Schedvin and Whitwell have both recalled ongoing interactions during Whitwell's PhD, which began at Monash, but moved to the University of Melbourne when Schedvin took up the Chair in economic history.[198] Whitwell has noted the quality of his interactions with Schedvin, commenting that "he and I got on very well. […] He asked me if I would do a PhD,

[195] McLean interview.
[196] Feld, 'Social ties'.
[197] Though McLean and Snooks technically graduated in the 1970s (each in 1971) their PhD work has been considered alongside their contemporaries in the 1960s. See chapter 6.
[198] Schedvin; Whitwell interview.

and I didn't hesitate for a moment".[199] Frost has recalled complementary supervision by John McCarty and David Merrett at Monash, commenting that McCarty was an excellent sounding board, and that Merrett provided generous yet rigorous written feedback.[200] Hutchinson has recalled excellent supervision by Stephen Nicholas at UNSW, commenting that "if I didn't see him every week, he would come knocking on my door".[201] Duncan was jointly supervised by Fogarty at the University of Melbourne, and Ezequiel Gallo at the Instituto Torcuato di Tella in Buenos Aires. Duncan then co-authored with Fogarty, and mentioned ongoing visits and collaborations with Gallo in the 1980s.[202]

Occasionally, the connection between supervisors and students was destructive, as was the case with Pamela Statham and her supervisor Reg Appleyard at UWA. Statham has recalled an incident where a good proportion of her PhD thesis was published, without credit, by Appleyard for the WA centenary.[203] This led to a change of supervisor, and ongoing tension between the two scholars, as Statham continued to teach in Appleyard's economic history group. The experience did encourage Statham to reach out to Noel Butlin at the ANU, and to integrate more with that community through the 1980s. This led to further collaborations with Butlin and the RSSS group, and to Statham's secondment at the ANU in the late 1980s. Statham has argued that Butlin took on a pseudo-supervisory role in her professional development, giving her "more support than anyone else in the profession".[204]

PhD students were generally integrated into the normal activities of their departments, leading to ongoing interactions not only with supervisors, but with other members of staff. While this was largely the domain of the Canberra community in the 1950s and 1960s, the expansion of seminars in other locations meant involvement of students in departments at UNSW, Melbourne and Monash, as well as Canberra, at this time. Hutchinson has argued that she was always included in the social and professional activities of the UNSW department, with participation in social activities, undergraduate teaching, research assistant work, and involvement in staff seminars.[205] At the ANU, Wells and Pope both

---

[199] Whitwell interview.
[200] Frost correspondence, 03.01.2017.
[201] Hutchinson interview.
[202] T. Duncan, *Government by audacity: Politics and the Argentine economy, 1885 - 1892*, Doctor of Philosophy, University of Melbourne, 1981, p.v; T. Duncan and J. Fogarty, *Australia and Argentina: On parallel paths*, Melbourne: Melbourne University Press, 1984, p.xii – xiii.
[203] Statham interview.
[204] Statham interview.
[205] Hutchinson interview. Social activities mostly included wine tastings at UNSW's staff club.

participated in the joint economic history seminars in the 1980s.[206] Pope and Snooks were also integrated into the main edited works from the RSSS economic history.[207] In his thesis, Pope acknowledged the value of his integration with the seminar series, and the department as a whole.[208] At Melbourne, Duncan thanked non-supervisor members of the economic history and history groups, including Beever, Blainey, Schedvin and Frank Strahan.[209] Duncan also thanked John McCarty at Monash, indicating both the connection between economic historians in Melbourne and Monash, and McCarty's leadership in comparative economic history. Frost has remembered participating in Monash seminars, and being made welcome by both supervisors and non-supervisory staff members.[210]

PhD studies also reinforced the spatial placement of ideas, with supervisors shaping the scholars' approach to research. Hutchinson has argued that Nicholas influenced her approach to economic history, instilling an "openness to quantitative data and hypothesis testing" that was characteristic of the Convict Workers project at UNSW in the 1980s.[211] Statham has argued that her interactions with Butlin influenced her intellectual development, in particular his emphasis on economic processes, and the need for good quantitative data.[212] Whitwell has argued that his supervisor Schedvin was "the towering intellectual influence on me; he [was] the most learned individual I ever met".[213] For his thesis on Argentinian economic history, Duncan acknowledged Fogarty's influence in introducing and extending his knowledge in the subject.[214] Snooks adopted the orthodox approach in much of his published work, both before and after his PhD at the ANU. Pope adopted the orthodox methodology in a number of texts, transforming this into more statistical and deductive techniques throughout the 1980s. Pope's approach was partially due to intellectual influence from Butlin, but also through supervision by Pincus, and

---

[206] ANUA 62/115, 117.
[207] D. Pope, 'Population and Australian economic development 1900 - 1930', in Maddock and McLean, ed., *The Australian economy in the long run*, Melbourne: Cambridge University Press, 1987; G. Snooks, 'Government unemployment relief in the 1930s: Aid or hindrance to recovery?', in Gregory, ed., *Recovery from the Depression*, Cambridge: Cambridge University Press, 1988.
[208] D. Pope, *The peopling of Australia: United Kingdom immigration from Federation to the Great Depression*, Doctor of Philosophy, Australian National University 1976, p.xiii.
[209] Duncan, *Government by audacity*, p.v.
[210] Frost correspondence, 03.01.17.
[211] Hutchinson interview.
[212] Statham interview.
[213] Whitwell interview.
[214] Duncan, *Government by audacity*, p.v.

engagement with younger members of the ANU community such as Maddock and McLean.[215]

PhD supervision thus fostered interactions between younger scholars, their supervisors, and other members of economic history departments. Decentralisation of supervision in the 1970s and 1980s contributed to the social enclaves that developed at each location, the relatively lower prominence of the ANU group in the social network, and the divergence in intellectual characteristics between local environments.

8.2.4. Separate departments

By the 1970s, most economic historians were appointed to separate departments within economics or business faculties. As small groups, separate departments were foci with high constraint.[216] They reinforced the connections between economic historians, concentrated communication in the group, and restricted their ability to form connections with researchers in other disciplines. McLean has criticised the fragmented structure of the ANU, commenting that it was "amazing how little contact there was" between the different departments. The location of economic history groups within business or commerce faculties meant that some contact was maintained with the economics discipline. Interviewees have argued that their communication was relatively greater with economists, with Pincus recalling good relations with members of the Flinders and RSSS economics departments, and scholars at Monash identifying that the tea room was an important forum for communication with economists.[217]

Separate departments may also have restricted contact with the history discipline. Members of the Canberra group have recalled only rare contact with historians,[218] although Jackson argued that an exceptional joint course with the Arts faculties did help build relationships with the history group in the Faculties.[219] Shergold, at UNSW, similarly argued that the position of the economic history department in the Faculty of Commerce restricted his interactions with the history group. At Melbourne and Monash, separate

---

[215] Pope, *Peopling of Australia*, p.xiii.
[216] Feld, 'Social ties'.
[217] He argued he would have gone for a job in economics, but both Trevor Swan (RSSS) and Keith Hancock (Flinders) asked 'why would we pay for you? You write economics, you participate in our department'. For Monash, see Merrett; Schedvin interviews.
[218] Pincus, Maddock, McLean interviews.
[219] Jackson interview.

departments in economics faculties meant less official interactions with historians.[220] At the individual level, however, there were some good relationships with the history discipline. Scholars at Monash have recalled interactions with Davison,[221] and McCarty's important role in reaching out to those in history.[222] At Melbourne, Blainey argued that during his leadership of the economic history department in the 1970s, the group shared a lot of students with the history group, even though the department was housed in the economics faculty. Blainey also recalled teaching and attending seminars in the history group, eventually taking up the Ernest Scott Chair in History in 1976.[223] McLean has recalled easier connections with the history group at Adelaide, with interpersonal interaction, and attendance at history seminars. Contact with historians thus became more difficult, though not impossible, through separate departments in economics or business faculties. This was compounded by the movement of the history discipline away from examination of material elements, and towards culture and linguistics.[224] The relative willingness of Melbourne scholars to maintain contact with historians, and the disinterest from ANU scholars to do the same, was reflected in collaboration trends, and the intellectual characteristics of each group in the 1970s and 1980s.

Small departments of economic history also meant that the "idiosyncracies of each of the departments stemmed from the person who had the Chair".[225] Scholars in leadership positions were generally remembered beyond the sum of their published work, with both McCarty and Rimmer remembered as influential through their positions as God Professors of the Monash and UNSW departments respectively.[226] Davison and Dingle have both argued that McCarty was a positive force in the community through his role as a teacher as much as a researcher, crediting him for both hiring and inspiring a good group of economic historians at Monash.[227] McCarty also used this position of leadership to push the comparative economic history framework within the Monash and Melbourne communities.[228] Rimmer has received mixed reviews, with Shergold arguing he did well to hire a group of bright young scholars at UNSW in the 1970s, but also commenting that

---

[220] Monash: Schedvin; Merrett interview. Melbourne: Blainey interview.
[221] Schedvin; Dingle/Davison; Merrett interviews.
[222] Sinclair interview.
[223] Blainey interview.
[224] H.-M. Teo and R. White, *Cultural history in Australia*, Sydney: UNSW Press, 2003.
[225] Hutchinson interview.
[226] See discussion of 'God Professors' in chapter 6.
[227] Dingle/Davison interview.
[228] Dingle and Merrett both note that McCarty was the main reason Melbourne was focussed on comparative economic history. Dingle/Davison; Merrett interviews. See also chapter 9.

once they were there, he was not very good at leading the group. Nicholas has agreed with the latter, arguing that "he didn't bring people together, he was jealous, he was ungenerous […] I don't think he made good decisions".[229] Other strong personalities in the UNSW department also influenced the group, with Nicholas and Shergold building research and collaborative capacity through the Convict Workers program in the 1980s.[230]

Noel Butlin had a mixed role as God Professor of the RSSS economic history department. His influence over staff and the research program has been noted through his autocratic establishment of the 'Government and Capitalism' project.[231] This project resulted in a number of publications and collaborations between scholars, and made the interest in institutional economic history a major theme in the field in the 1980s. From the perspective of fostering collaboration and developing intellectual 'traditions', this top-down leadership was thus a positive force. At an individual level though, Cornish's impression was that Butlin's role was destructive, as he forced people to do things they did not want to do. Butlin's control over the research program may have also stifled potentially fruitful areas of research. Pincus has recalled a number of ideas he had for research in the department – such as using the RSSS's new computer for statistical work – that never took off simply because Butlin did not approve.[232]

Separate departments were thus constrained foci in which small groups of scholars shared intense interactions. While faculty tea rooms assisted communication across disciplinary boundaries, seminars and PhD supervision concentrated communication among economic historians. This was reinforced by God Professors, or strong personalities in each group, with leaders in Canberra, Melbourne and Sydney developing department-based interactions and joint projects. Long tenures, low institutional mobility, and the development of these joint activities in locations other than Canberra meant that the 1970s and 1980s were characterised by enclaves of social relationships, structured by the institution or (in the case of Melbourne) the city in which scholars worked. Strong ties within each local environment restricted communication both to economic historians in other locations, and to scholars in other disciplines. The overall insularity of communication was reflected in the field's collaboration trends, with economic historians generally choosing to engage in joint work amongst members of their local environment.

---

[229] Nicholas interview.
[230] Nicholas, Shergold interviews.
[231] Pincus interview.
[232] See Pincus interview. Similar disapproval of statistical testing, and the effect this had on the field's research program has been noted in interviews by McLean and Gregory.

8.3. Collaboration

The expansion of staff and concentration of professional interactions between economic historians was accompanied by greater interaction through edited works, co-authorship and sub-authorship. While collaboration was generally between co-located scholars, there was some diversification of ties. This may have been driven by small incremental improvements in communication technology and travel costs, and more outward-looking behaviour. Intellectual similarity also had an effect, with scholars choosing to communicate with those who had similar interests or perspectives. By providing an additional focus through which likeminded scholars could interact, collaboration reinforced the dominant approach to economic history at each location, and contributed to the spatial placement of ideas. In particular, scholars in the ANU community shared more ties with economists, reinforcing their orientation towards the approach of that discipline. Collaboration in Canberra also structured engagement with the institutional approach. In Melbourne, collaboration engaged scholars from a range of disciplines – including economics, history, geography, and political science – and emphasised the comparative economic history framework. Scholars in Sydney were more minor players in terms of collaboration, and their insular collaboration patterns corresponded with lower consistency in approach, but common engagement with the human capital of convict workers.

8.3.1. *Edited works*

Figure 8.6 indicates ties between scholars based on their contributions to edited works. These texts can be divided into large collaborative volumes and minor edited collections. The former category includes Maddock and McLean's *The Australian economy in the long run* (hereafter *The Australian economy*), Gregory and Butlin's *Recovery from the Depression* (hereafter *Recovery*), and Nicholas' *Convict workers*. Minor edited collections include three texts associated with the *AEHR* and EHSANZ, and Vamplew's edited statistical volume.[233]

[233] C. Schedvin and J. McCarty, ed. *Urbanization in Australia: the nineteenth century*, Sydney: Sydney University Press, 1974; J. McCarty and C. Schedvin, ed. *Australian capital cities: historical essays*, Sydney: Sydney University Press, 1978; A. E. Dingle and D. T. Merrett, ed. *Argentina and Australia: Essays in comparative economic development*, Clayton: Economic History Society of Australia and New Zealand, 1985; W. Vamplew, *Australians, historical statistics*, Broadway: Fairfax, Syme and Weldon Associates, 1987.

8.3.1.1 Major edited works

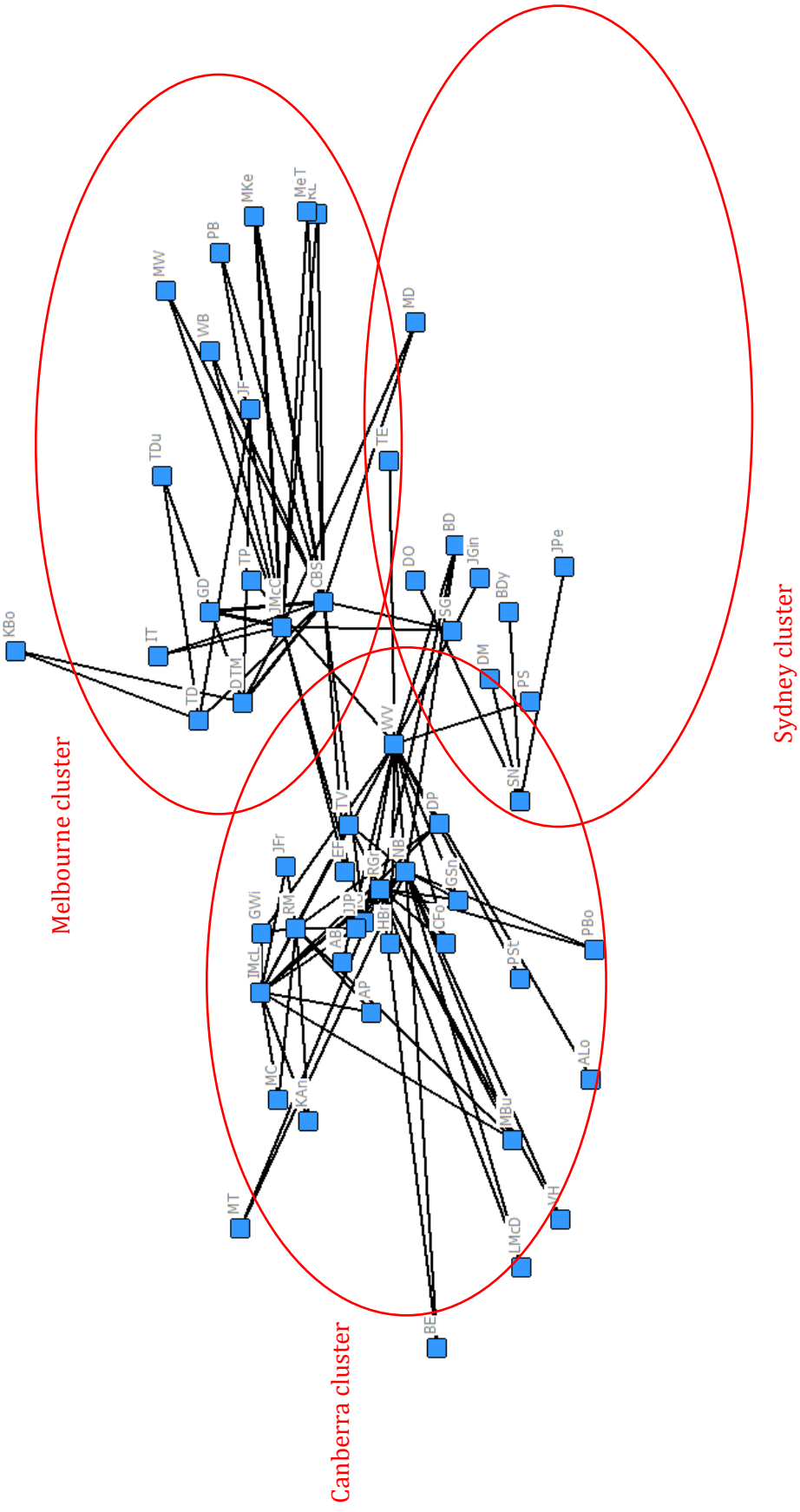
Of the main edited works, two emerged from the ANU community, and both had a substantial orientation – in terms of both contributors and approach – to the economics discipline. Maddock and McLean's *The Australian economy* involved many of the younger members of the ANU economic history community, including Maddock and McLean themselves, Pincus, Withers, Pope, and Matthew Butlin. Other contributors were largely economists, including Valentine, Pagan, Freebairn, Kym Anderson and Carter. Though none were co-located at the time of the book's publication, most contributors had spent some time working at the ANU during the 1970s or 1980s, and many had co-authored with other chapter authors throughout this period.[234] The effect of these initial co-location ties is shown visually in Figure 8.6, with all chapter author found in the large ANU cluster.

In addition to being geographically proximate, these scholars also expressed an approach to economic history that favoured the insights of the economics discipline. Scholars were motivated by *homophily* in this case, with similar ideas easing communication between scholars.[235] Maddock has supported this, recalling that common adherence to an economists' framework meant the structure of the volume probably only took an afternoon to figure out.[236] Demonstratively, other members of the ANU economic history community that held a different approach to the subject (such as Barnard and Cain) were not involved as chapter authors.[237] Thus, both a common focus, and intellectual similarity were necessary for collaboration in this case.

---

[234] See below. Existing co-authorship pairs were Carter and Maddock; Pincus/Maddock/McLean; Pope and Withers. The maintenance of ties – initially formed through a common contextual factor – may have been possible through incremental improvements in communication technology over this period.
[235] Brass, 'Human resources management'; Lazarsfeld and Merton, 'Friendship'; McPherson, et al., 'Birds of a feather'.
[236] Maddock interview.
[237] They were invited to be discussants on chapters though. See R. Maddock and I. W. McLean, ed. *The Australian economy in the long run*, Cambridge Cambridge University Press, 1987, p.ix.

Figure 8.6: Collaboration on edited works, 1971 - 1991



Gregory and Butlin's *Recovery* – the second main edited work – was also oriented towards the economics discipline. Economist Bob Gregory co-edited the volume, and he argued that "we […] believed that it would be useful to bring together economists and economic historians to a conference to discuss the recovery process from the depression".[238] Incremental improvements in technology and more outward-looking behaviour may have made overseas collaborations possible, with the first third of the book examining the progress of the 1930s Depression in a number of comparative contexts.[239] Of the chapters on Australia, most authors were co-located at the ANU, with contributors shown in the large ANU cluster in Figure 8.6.[240] *Homophily* was also present in this case, with contributors either economists, or economic historians with an approach that favoured the approach of economics.

For Nicholas' edited *Convict workers*, a common workplace was the primary motivation for collaboration. All chapter authors were employed by the UNSW economic history department, including Nicholas himself, Meredith, Dyster, Shergold, and Perkins.[241] Oxley completed her PhD on female convicts in the UNSW economic history department at the time, and also contributed a chapter to the volume. These scholars are all placed in the UNSW cluster in Figure 8.6. In contrast to the ANU-based edited works, these authors did not have intellectual similarity.[242] Nicholas has argued that he accepted that some authors would write chapters in a very "traditional" way, and in turn they accepted that his chapters would be written in a very different way.[243] This resulted in some chapters adopting a statistical and deductive approach to their subject, and some involving qualitative and realist elements. Nicholas and Hutchinson have both argued that the volume was better off for this diversity, suggesting that *transactive memory* – or collaboration based on complementary skills or knowledge – was a motivation here.[244]

---

[238] R. G. Gregory and N. G. Butlin, ed. *Recovery from the Depression: Australia and the world economy in the 1930s*, Cambridge: Cambridge University Press, 1988, preface.
[239] Overseas collaborators were Barry Eichengreen (US), Alan Green (Canada), Tim Hatton (UK), Gary Hawke (NZ), V Ho (US), GR Sparks (Canada), Mark Thomas (US), Yasuba Yasukichi (Japan).
[240] This included Gregory, Noel and Matthew Butlin, Forster, McLean, Pincus, and Snooks, and Valentine. The exception is Davidson, who was part of the University of Sydney agricultural economics group.
[241] Shergold is not tied with Nicholas in Figure 8.6, because each chapter in *Convict workers* in which Shergold was involved, was co-authored with Nicholas himself. So, this collaboration is included in co-authorship, below.
[242] See the discussion of the knowledge network in chapter 9.
[243] Nicholas interview.
[244] Hollingshead, 'Retrieval processes'; Hollingshead, et al., 'Intranet knowledge-sharing'; Katz, et al., 'Small groups'; Wegner, 'Transactive memory'.

Convict workers thus represented the effect of a common contextual factor, with collaboration occurring despite divergent approaches to economic history.

Although these edited works had different motivations for collaboration, they each created or reinforced connections between editors and chapter authors. In the preface of *The Australian economy*, Maddock and McLean commented that contributors met at the ANU on four separate occasions to discuss progress on their work. For the final meeting, an invitation was extended to a number of discussants, many of whom were part of the ANU community.[245] Similarly, contributors to *Recovery* met at a conference, with overseas contributors invited as part of the ANU visiting scholar program. For *Convict workers*, Nicholas argued in the preface that each chapter was read and commented on by the other contributors, with a weekly seminar held during early 1987 to discuss the general interpretations of each author.[246]

There is evidence that collaboration increased communication and social cohesion amongst each group. For *The Australian economy*, Pope, Valentine, Freebairn, Carter, Matthew Butlin and Withers all acknowledged the general comments and assistance of the editors and other chapter authors. Invited discussants were also acknowledged in a number of chapters.[247] For Gregory and Butlin's *Recovery*, the editors, chapter authors, and participants in the conference were acknowledged in chapters by Gregory, Matthew Butlin, Snooks and McLean. *Convict workers* contained very few individual acknowledgments, though Nicholas did mention the comments and assistance of his fellow authors.[248] Nicholas has argued that *Convict workers* was an important activity for ongoing social cohesion in the department, arguing that it was seen as attenuating some conflict between colleagues.[249] However, while Shergold and Hutchinson agreed that the project worked well on the whole, Shergold has argued that may have also caused some tension.[250] Thus, communication between scholars on edited works was a relatively consistent feature, though the level of collegiality may have differed between each case.

---

[245] Maddock and McLean, ed. *Australian economy*, p.ix.
[246] The seminars did not stick out in Nicholas' mind: he argued that they were a quite minor part of the process. Shergold, on the other hand, has remembered regular seminars and working papers for the book. Nicholas; Shergold interviews.
[247] Maddock and McLean, ed. *Australian economy*. General: Maddock. Specific: Valentine thanked Schedvin; Pagan thanked Hall and Johnston; Freebairn thanked Harris, Hall, Gruen; Carter thanked Haig and Hall; Matthew Butlin thanked Hall; Withers thanked Keating.
[248] S. Nicholas, ed. *Convict workers: Reinterpreting Australia's past*, Melbourne: Cambridge University Press, 1988, p.ix.
[249] Nicholas interview.
[250] Shergold; Hutchinson interviews.

8.3.1.2 Minor edited collections

While the major edited works were relatively constrained foci that led to joint activities and communication between contributors, the minor edited collections were less constrained. These collections were related to the normal activities of the *AEHR* and the EHSANZ, with the editors of each generally the editors of the journal at the time. Heavier involvement of Melbourne scholars in the journal meant that these collections were generally edited by members of the Melbourne community. In the 1970s, McCarty and Schedvin edited two collections on Australian urban history. The first was a re-print of a special issue of the *AEHR* (September 1970), at which time McCarty and Schedvin were the journal's editors.[251] The second, *Australian capital cities*, re-printed the essays by McCarty, Kelly and Davison from the first collection, and added in a number of previously published 'urban biographies' by Fry, Turner, Lawson, Williams and Bolger.[252] Original essays by Meredith Thomas and Merrett rounded out the volume. For these two collections, a common workplace was comparatively less responsible for structuring collaboration. Figure 8.6 shows that although contributors from the city of Melbourne featured most heavily, representatives from Canberra, Sydney, Perth, the US, the UK, and Papua New Guinea were also involved.[253] The common contextual factor in this case was submission to the journal. The lower constraint of the journal and the editors' aim of presenting collections of essays rather than major edited texts, meant that collaboration in these cases had low constraint.[254] Thus, geographically disparate authors were viable contributors, and there was less need for joint activities. Though contributors and editors probably communicated about the material, there is no evidence of separate meetings.

Dingle and Merrett, on behalf of the EHSANZ, edited a similar collection of essays on the comparative economic development of Australia and Argentina. In contrast, this volume involved both geographically proximate contributors and joint activities. The volume emerged from a 1982 symposium organised in conjunction with British economist

---

[251] Schedvin and McCarty, ed. *Urbanization in Australia*. Other authors included: Jackson, Glynn and Bate represented the ANU; Daly and Kelly were from Sydney (Macquarie University and UNSW respectively); and Davison, Schedvin and McCarty were from Monash University.
[252] McCarty and Schedvin, ed. *Australian capital cities*
[253] D. T. Merrett, 'Australian capital cities in the twentieth century', in McCarty and Schedvin, ed., *Australian capital cities*, Sydney: Sydney University Press, 1978. McCarty, Schedvin, Turner and Merrett from Monash, and Davison from the University of Melbourne. Kelly from Macquarie in Sydney; Thomas from UWA in Perth; Lawson from New York; Williams from Oxford; and Bolger from Papua New Guinea.
[254] Feld, 'Social ties'.

Kenneth Boulding's visit as the University of Melbourne's Downing Fellow.[255] The symposium favoured those located in Melbourne,[256] and chapter authors – including Fogarty, Duncan and Schedvin – were prominent economic historians at the University of Melbourne. Though there were only a small number of contributions, the presence of joint activities, and existing social ties between participants, means this focus had a higher constraint than the urban history collections. As a result, it is likely that there was collaboration and discussion of research associated with this collaboration.

Vamplew compiled a statistical volume for the 1988 bicentennial.[257] Contributors shared neither a common focus, nor cognitive similarity, with representatives from most of the locational communities, and intellectual traditions. Figure 8.6 shows authors of economic history chapters from the ANU, WA, UNSW, Sydney, Melbourne, Queensland, and New Zealand.[258] Contributors were instead structured by their area of specialty, with Butlin focussing on national accounts, Withers on labour, and Davidson on agriculture.[259] Statham has argued that she knew Vamplew through the annual conferences,[260] so it was perhaps at these meetings that scholars were assembled. The nature of this volume – with the compilation but no interpretation of national statistics – and the lack of evidence of collaboration or seminar meetings meant that this focus had relatively low constraint. Although this volume updated the quantitative infrastructure of the economic history field, there is very little to suggest it fostered national communication and collaboration.[261]

There was some decentralisation of collaboration on edited works in the 1970s and 1980s. The ANU group maintained prominence, with scholars involved in two large, edited volumes that integrated economic history into discussions of current economic policy. However, there was also a major edited work from the UNSW group, and minor edited collections from those in Melbourne. Vamplew's statistical text involved prominent economic historians from across Australia. Gradual improvements in communication

---

[255] Dingle and Merrett, ed. *Argentina and Australia*, p.iii.
[256] Melbourne/Monash/La Trobe: Merrett and Dingle; Boehm; Carr; A Davidson; Dixon; Feith; Fogarty; Miller; Niblo; Norman; Peres; Reeves; Schedvin; Stent; Veliz; Watson; Wilson. Denoon and Maddock were at the ANU, and Stretton was at the University of Adelaide.
[257] Vamplew, *Historical statistics*.
[258] ANU: Noel Butlin, Withers, McLean, Forster, Pope, Barnard, Snooks, and Jackson. WA: Statham. UNSW: Shergold. Sydney: Ginswick and Davidson. Melbourne: Perry, co-authored with Withers. Queensland: Lougheed. NZ: Tony Endres, co-authored with Withers.
[259] These were similar areas to what these scholars published in this period. See the discussion of the knowledge network in chapter 9.
[260] Statham interview.
[261] Despite the number of contributors to this volume that were interviewed, only Hutchinson and Statham mentioned Vamplew's role, and the volume, as a form of national collaboration. Hutchinson; Statham interviews.

technology and travel costs, and more integration with international scene may have encouraged involvement of geographically disparate scholars. Nevertheless, there was still broad tendency for scholars to collaborate with those in their local environment. This reflected and reinforced the intellectual characteristics of each group.

8.3.2. Co-authorship

Co-authorship also expanded at this time, with relatively more ties between scholars in Melbourne and Sydney. As a more constrained focus, co-authorship was heavily structured by both co-location and intellectual similarity. Scholars tended to co-author with those in their local community, but also with those who either shared a similar view of economic history, or were part of the adjacent discipline with which they held greater affiliation. By collaborating with both proximate and likeminded scholars, co-authorship reinforced both the existing social communities, and the dominant approaches to economic history at each location.

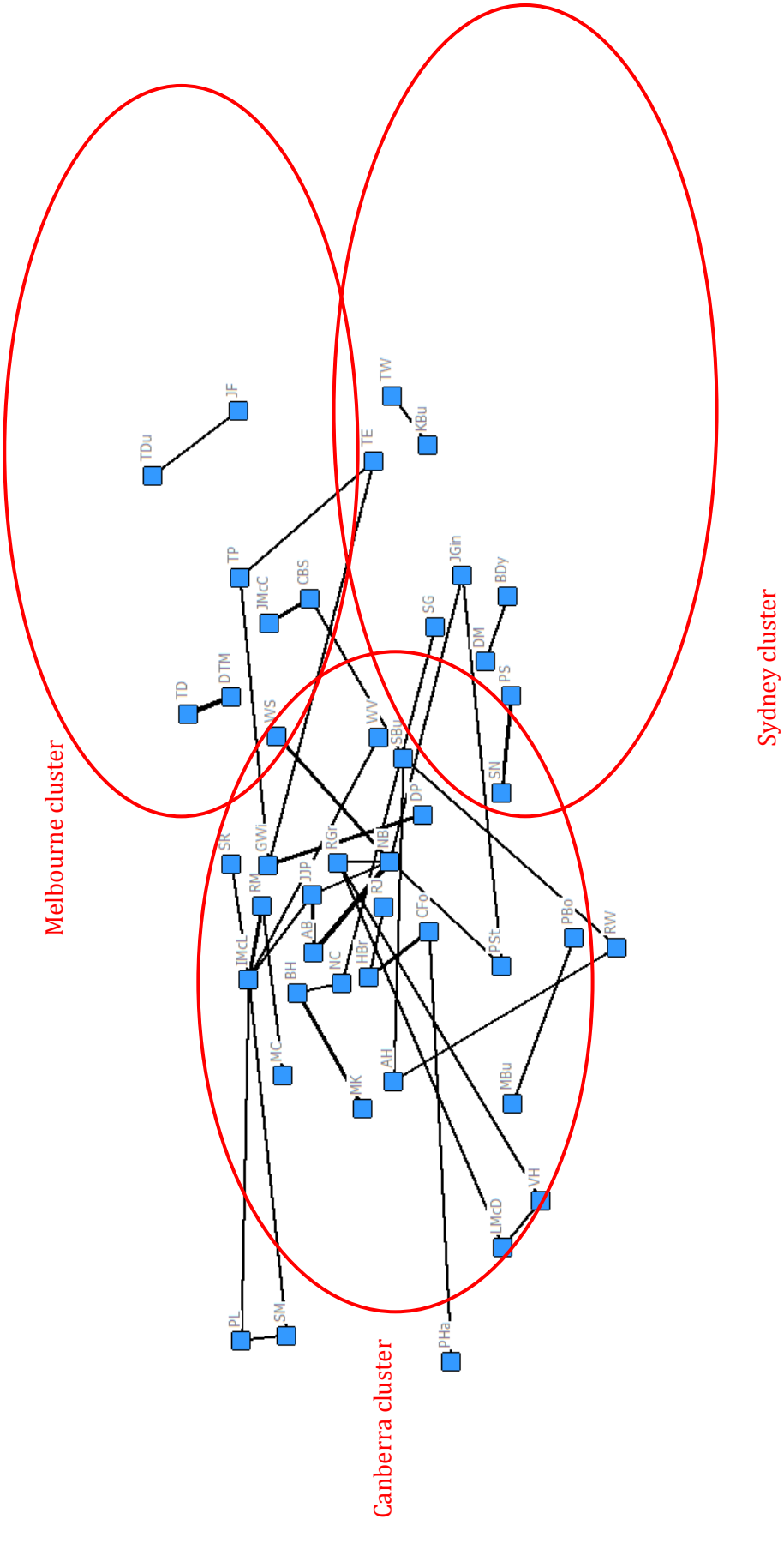
Figure 8.7 shows co-authorship ties between scholars on published works in this period. It indicates that in most instances, co-authorship was between geographically proximate peers. The ANU cluster is the most prominent, with a number of collaborations between key Canberra-based scholars. Butlin, Barnard and Pincus' dense collaboration ties were primarily due to their co-location in the RSSS economic history department. Pincus has argued that *Government and capitalism*, and a number of subsidiary articles, emerged from 1980s project of the same name, with he and his co-authors essentially tossing a coin about which section they were going to cover.[262] The collaboration between Jackson, Forster, and Helen Bridge was also primarily due to co-location, with Bridge a research assistant in the Faculties economic history department throughout this period.[263]

---

[262] As a side note, Pincus mentioned that Maddock was meant to contribute a section to the volume on taxes, which was the theme Maddock was hired to the overall project to cover. However, when questioned on it, Maddock has since commented that he was never told he was supposed to be involved in the book. "That was never discussed with me…I was hired to the 'project'". See Pincus; Maddock interviews.

[263] See ANU Calendars.

Figure 8.7: Co-authorship, 1971 - 1991



Intellectual similarity was also required for co-authorship. From the Canberra group, those younger scholars who had a more statistical and deductive approach to economic history collaborated, including Maddock, McLean and Pincus, and Pope and Withers.[264] Noel Butlin and Sinclair co-authored, reflecting their longstanding association and similar, orthodox approach to the subject.[265] At UNSW, Shergold and Nicholas co-authored a number of chapters in *Convict workers*, which was induced by their co-location and their advocacy of a statistical, labour market approach to economic history.[266] Also at UNSW, those who did not share a statistical approach – Dyster and Meredith – co-authored with each other.[267] Buckley and Wheelwright were co-located at the University of Sydney for over 30 years. Their co-authorship was partly due to ongoing co-location ties, but also their shared labour history and Marxist approach to the subject.[268]

In Melbourne, Dingle and Merrett had a "dalliance in urban history",[269] co-authoring two articles on home-ownership in Melbourne. They also co-edited the *AEHR* between 1985 and 1988, and co-edited a collection of essays on Australia and Argentina.[270] This ongoing collaboration was due to their proximity at Monash throughout the 1970s and 1980s, but also their common quantitative and inductive approach.[271] Also at Monash, McCarty and Schedvin jointly edited the *AEHR* between 1966 and 1972, and collaborated on the two urban history collections that emerged out of the journal in the 1970s. Both scholars

---

[264] R. Maddock and I. W. McLean, 'Supply-side shocks: The case of Australian gold', *The Journal of Economic History*, 44, 4, 1984; Maddock and McLean, ed. *Australian economy*; I. W. McLean and J. J. Pincus, 'Did Australian living standards stagnate between 1890 and 1940?', *The Journal of Economic History*, 43, 1, 1983; G. Withers and D. Pope, 'Immigration and unemployment', *Economic Record*, 61, 2, 1985.

[265] N. G. Butlin and W. A. Sinclair, 'Australian gross domestic product 1788-1860: Estimates, sources and methods', *Australian Economic History Review*, 26, 2, 1986.

[266] S. Nicholas and P. R. Shergold, 'Unshackling the past', in Nicholas, ed., *Convict workers*, Melbourne: Cambridge University Press, 1988; Nicholas and Shergold, 'Unshackling the past'; Nicholas and Shergold, 'Global migration'; Nicholas and Shergold, 'Global migration'. Shergold had done statistical labour market work on America for his PhD thesis, and Nicholas had trained in quantitative hypothesis-testing in Iowa as an undergraduate. Shergold; Nicholas interviews.

[267] B. Dyster and D. Meredith, *Australia in the international economy in the twentieth century*, Melbourne: Cambridge University Press, 1990 was largely qualitative and narrative-based.

[268] K. D. Buckley and E. L. Wheelwright, *No paradise for workers: Capitalism and the common people in Australia, 1788-1914*, Melbourne: Oxford University Press, 1988. Schedvin has described Buckley as an 'old-fashioned labour historian'. He also argued that Buckley worked with Wheelwright a lot due to Wheelwright's extensive work on Marxism and the labour theory of value. See Schedvin interview.

[269] Merrett interview.

[270] Dingle and Merrett, 'Home owners and tenants'; A. E. Dingle and D. T. Merrett, 'Landlords in suburban Melbourne, 1891-1911', *Australian Economic History Review*, 17, 1, 1977; Dingle and Merrett, ed. *Argentina and Australia*.

[271] This approach was consistent when they wrote separately, and when they wrote together. See chapter 9.

showed elements of orthodox economic history, though they also held a broader sense of intellectual inquiry that was open to trends in both history and economics.[272] Their collaboration was not necessarily because of the *same* methodology, but instead through a shared encouragement of a variety of approaches to economic history. Co-authorship was thus partially motivated by *homophily*, with a shared perspective of economic history easing communication between scholars.

Scholars also collaborated with either economists or historians depending on their approach to the subject. Members of the Canberra community co-authored with economists in this period, with McLean collaborating with Sue Richardson, Maddock with Michael Carter, and Noel Butlin co-editing *Recovery* with Bob Gregory.[273] Co-authorship with members of adjacent disciplines was primarily motivated by *transactive memory*, with economic historians collaborating with scholars who held complementary skills and knowledge.

Co-authorship was thus partially a social force in this field, reflecting the location-based communities of scholars. Co-authorship was also an intellectual force, with scholars choosing to collaborate with those who shared a similar approach to economic history. This is supported by the oral history evidence, with Maddock arguing that his collaborations have generally emerged through a combination of proximity and *homophily*:

> "Usually you'll be having a beer or having an argument about something over a meal, and talk about an issue, and then realise that you sort of spark off each other in the process. But I've always written with people that are very similar to me."[274]

In some cases, co-authorship was between geographically disparate authors. For instance, Schedvin and Syd Butlin, Noel Butlin and Sinclair, and Maddock and McLean co-authored texts while they were at different universities. This was largely due to previous co-location

---

[272] McCarty particularly incorporated Braudel's comparative economic history, and the regions of recent settlement framework. See J. W. McCarty, 'Australian capital cities in the 19th century', *Australian Economic History Review*, 10, 2, 1970; J. W. McCarty, 'Australia as a region of recent settlement in the nineteenth century', *Australian Economic History Review*, 13, 2, 1973. Schedvin's approach spanned from the statistical, hypothesis-testing of economic theory in C. B. Schedvin, 'Monetary stability and the demand for money in Australia between the Wars', *Australian Economic History Review*, 11, 2, 1971, to a discussion of Basalla's history of science framework in C. B. Schedvin, 'Environment, economy and Australian biology, 1890-1939', *Historical Studies*, 21, 82, 1984.

[273] I. W. McLean and S. Richardson, 'More or less equal? Australian income distribution in 1933 and 1980', *Economic Record*, 62, 176, 1986; M. Carter and R. Maddock, 'Leisure and Australian wellbeing 1911-1981', *Australian Economic History Review*, 27, 1, 1987; Gregory and Butlin, ed. *Recovery*.

[274] Maddock interview.

ties, and intellectual similarity. Incremental improvements in technology may have encouraged this type of interaction, with scholars gradually better able to maintain connections over distance.

The effect of co-authorship on this community was mixed. In most cases it reinforced the social enclaves that emerged at each location. Hall has argued that his collaboration with Syd Butlin was a largely positive experience, with Syd helping him come to grips with the detailed banking records.[275] Similarly, Dingle has argued his partnership with Merrett was positive, and that they "worked well together".[276] Fogarty and Duncan – following Duncan's joint supervision in Buenos Aires – acknowledged collaborative activities with colleagues in Argentina.[277] In other cases, there is evidence to suggest that the lived experience of these collaborations had minimal effect on each author. Gregory has argued that although he and Butlin edited *Recovery* together, they "weren't really collaborators".[278] Similarly, Schedvin argued that he and Syd Butlin did not "collaborate in any intellectual sense" on the second *War Economy* volume, instead separately writing each section.[279]

In a small number of cases, formal collaboration was a destructive force in this community. For *Government and capitalism*, Pincus argued that there was no real collaboration, with some political hostility between Butlin and Barnard on one side, and Pincus on the other. Pincus has recalled that he was relatively "antagonistic to public enterprises", resulting in a relatively "hysterical" reaction to his draft from the left-leaning Butlin and Barnard.[280] Co-authorship may have also caused problems elsewhere, with Davison and Dingle commenting that although McCarty was a lovely and encouraging person, collaboration with him was frustrating.[281]

Whereas co-authorship was primarily between members of the ANU community in the 1950s and 1960s, at this time there was an expansion of collaboration in other cities, particularly Melbourne, Sydney and Adelaide. The social network shows that co-location played an important role in structuring formal collaboration. Intellectual similarity was

---

[275] Hall interview.
[276] Dingle/Davison interview.
[277] Duncan and Fogarty, *Australia and Argentina*, p.xii.
[278] Gregory interview.
[279] Schedvin did edit Syd Butlin prose fairly heavily though. He has argued that although Butlin was a good English scholar, he wrote in a "very convoluted way, [with a] complex grammatical structure. […] I simplified it quite a bit." See Schedvin interview.
[280] Pincus interview.
[281] Davison and Dingle both had experiences where McCarty would start a particular piece, but then "back off in the eleventh hour", struggling to complete the project. See Dingle/Davison interview.

also a motivating factor, with scholars choosing to collaborate with those who held similar, or complementary, views of economic history. Qualitative sources also indicate that formal collaboration took many forms. Having said this, most evidence supports the standard conceptualisation of co-authorship as a social and intellectual force in an academic community.[282] Co-authorship was also a focus with greater intensity than other forms of collaboration, with evidence of greater interaction associated with this activity. As such, the expansion of formal collaboration in the 1970s and 1980s contributed to the social and intellectual enclaves that developed in the Australian economic history community.

8.3.3. Sub-authorship

As a less constrained foci, sub-authorship was less structured by co-location and intellectual similarity. Sub-authorship, by nature, is a focus with lower intensity, so requires less direct motivation for interaction.[283] Figure 8.8 shows sub-authorship ties between scholars on published work written in the 1970s and 1980s. Ties in this network still clustered around local communities, though there was much greater diversity compared to co-authorship and edited works.

[282] As discussed in Laudel, 'What do we measure'; Moody, 'Collaboration network'; Newman, *Networks*; Wang, et al., 'Knowledge networks'.
[283] Cronin, 'Bowling alone together'; Cronin and Overfelt, 'The scholar's courtesy'; Katz and Martin, 'Research collaboration'; Laudel, 'What do we measure'; Mullins, *Theory and theory groups*; Subramanyam, 'Bibliometric studies'.

Figure 8.8: Sub-authorship, 1971 - 1991

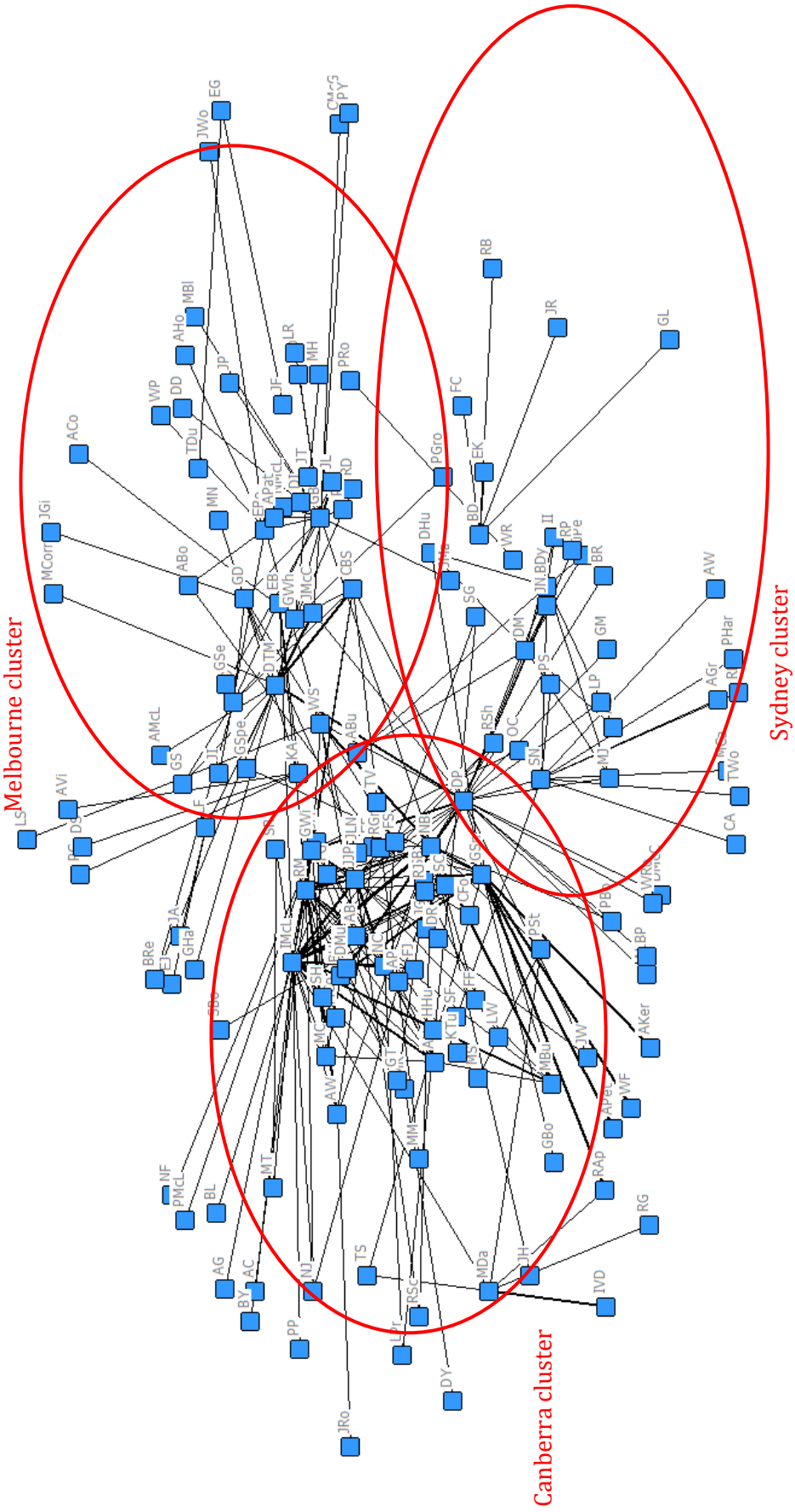


Figure 8.9: Sub-authorship, 1971 - 1991, Canberra cluster

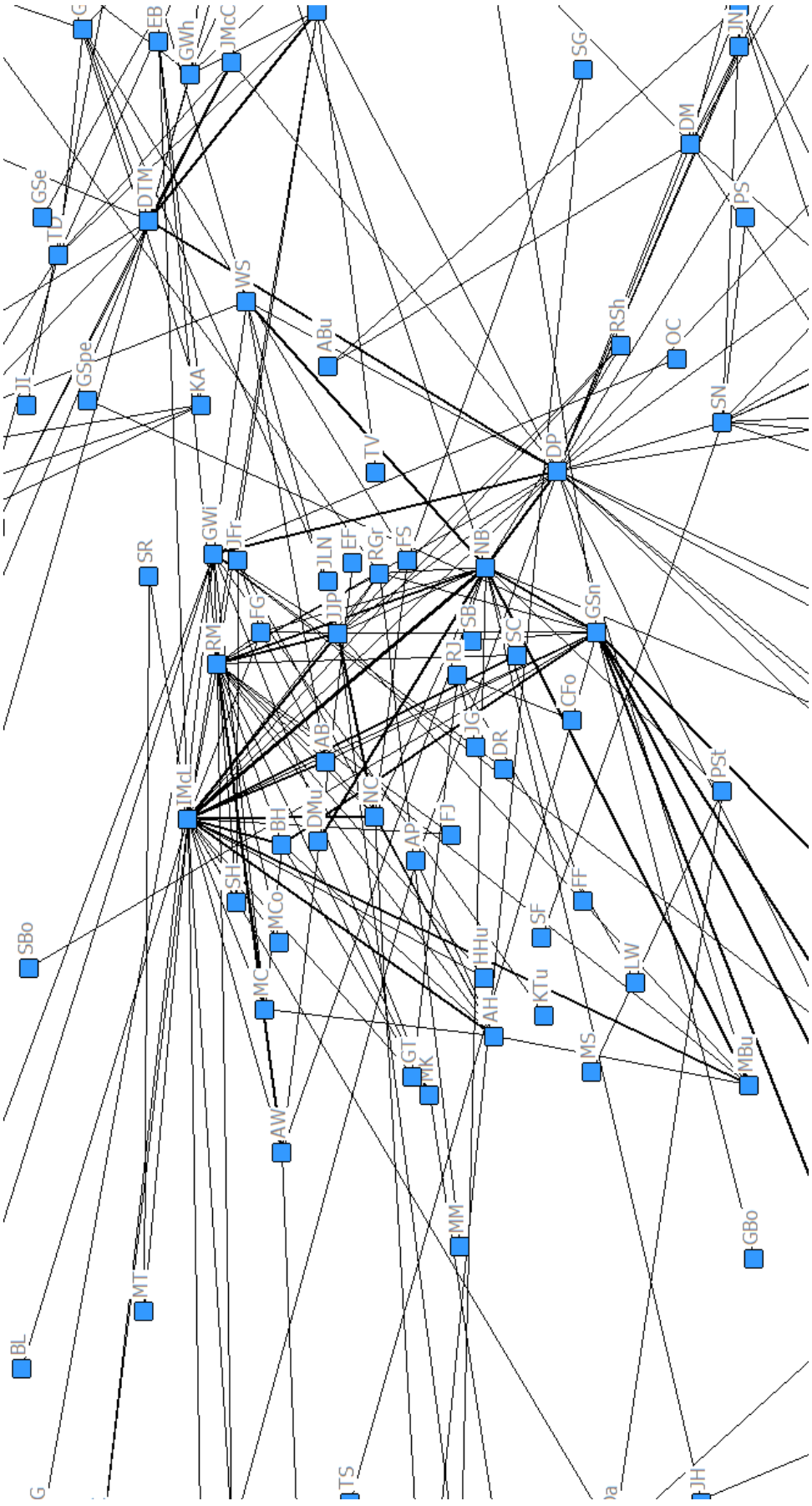
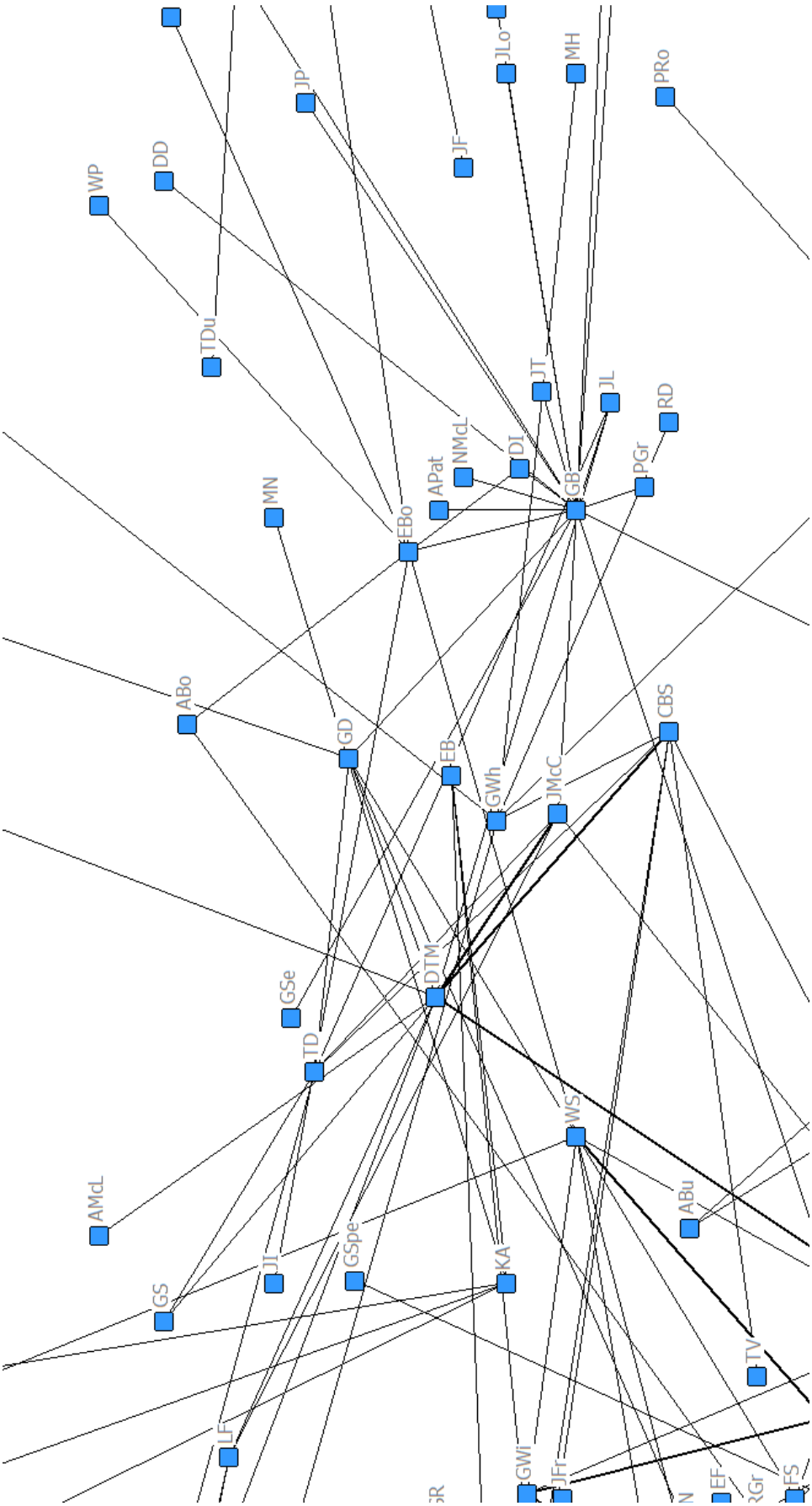


Figure 8.10: Sub-authorship, 1971 - 1991, Melbourne cluster



Geographically proximate colleagues in economic history departments formed the bulk of sub-authors. In particular, members of the RSSS economic history community, who were prominent for published works, were also influential in sub-authorship roles. Figure 8.9 shows the ANU cluster in more detail. Noel Butlin, McLean, Maddock, Withers, Pincus, Pope and Snooks forming the core of the ANU cluster. It also indicates those geographically proximate scholars who may not have been prominent for published works, but were important to the ANU community through informal roles.[284] ANU economic historians acknowledged each other for comments, feedback or assistance on published texts, suggesting that informal collaboration occurred alongside the more formal joint activities associated with this common focus. These ties remained even after scholars had moved to other universities. McLean and Pope continued to acknowledge ANU scholars after they had moved to the University of Adelaide and UNSW respectively in the mid-1970s. Their ongoing informal connection to this community accounts for their inclusion on the ANU edited works in the 1980s, and supports McLean's comment that his primary links (within Australia) throughout this period were with those at the ANU.[285]

As with other forms of collaboration, there was some decentralisation of sub-authorship ties in the 1970s and 1980s. Though the ANU was still prominent in informal collaboration, there was also the development of ties in Melbourne, Sydney, Adelaide and Perth. Figure 8.10 shows the Melbourne-Monash cluster in more detail, indicating a small group of scholars at Monash who shared sub-authorship ties. Merrett and Dingle thanked McCarty and Schedvin, the senior members of the Monash economic history department, for comments on their work on urban history.[286] There were also ties between UNSW economic history scholars, with Nicholas thanking Shergold and Dyster in *Convict*

---

[284] Cain, Haig, and Barnard were only minimally influential through published works in this period, but had connections to the other Canberra-Adelaide scholars by provided feedback on texts.
Cain was acknowledged by Butlin, Barnard and Pincus, and McLean: N. G. Butlin, J. J. Pincus and A. Barnard, *Government and capitalism: Public and private choice in twentieth century Australia*, Sydney: George Allen & Unwin, 1982, pp.x-xi; I. W. McLean, 'The adoption of harvest machinery in Victoria in the late 19th century', *Australian Economic History Review*, 13, 1, 1973; I. W. McLean, 'Growth and technological change in agriculture: Victoria 1870-1910', *Economic Record*, 49, 128, 1973, p.560.
Haig was acknowledged for his supervision of Keating's PhD, as well as by in articles by McLean and Snooks: M. Keating, *The Australian workforce, 1910-11 to 1960-61*, Canberra: ANU Press, 1973, p.8; McLean, 'Growth and technological change', p.560; I. W. McLean, S. Molloy and P. Lockett, 'The rural workforce in Australia 1871-1911', *Australian Economic History Review*, 22, 2, 1982, p.172; G. Snooks, 'Regional estimates of gross domestic product and capital formation: Western Australia, 1923 - 1938-39', *Economic Record*, 48, 124, 1972, p.536.
Barnard was acknowledged Snooks, 'Unemployment relief', p.311.
[285] McLean interview.
[286] Dingle and Merrett, 'Landlords'.

workers.[287] Similarly, Dyster and Meredith acknowledged the assistance of UNSW colleagues.[288] Mel Davies acknowledged the comments and feedback from fellow economic historians at UWA, including Appleyard, Statham, and Ian Vanden Driesden.[289] In a similar way to other forms of collaboration, a common workplace structured informal communication in this field.

Scholars also chose their sub-authors based on complementary skills and knowledge. Motivated by *transactive memory*, those who adopted a more economics-based approach tended to seek out the appraisal of economists, and those with a history-based approach sought feedback from historians. Those in Melbourne were relatively more connected to the history discipline, with Blainey, Alford, Dingle, and Merrett holding sub-authorship ties with historians.[290] In Sydney, Davidson's acknowledgments reflected his engagement with agricultural science and geography disciplines.[291] Andrew Wells connected the economic history community to the labour history field through his informal collaboration (and PhD supervision) with Eric Fry.[292] The RSSS economic historians, as with their co-authorship ties, had more informal collaboration links with the economics discipline.[293]

Occasionally, sub-authorship was structured by the interpretation of the particular text rather than the methodological characteristics of the author. This can be considered a form of *homophily*, but with 'sameness' through interpretation rather than approach. Blainey sought assistance from members of the medical science and botany disciplines for *A land half won*.[294] Alford sought out a scholar from the Law discipline for the "complexities of married women's property rights in the nineteenth century".[295] Noel Butlin acknowledged Frank Fenner's assistance with the nature and spread of smallpox,

---

[287] Nicholas, ed. *Convict workers*
[288] B. Dyster and D. Meredith, *Australia in the global economy: Continuity and change*, Cambridge: Cambridge University Press, 2012. They thanked colleagues Inkster, Pope, Perkins, and Hutchinson. Hutchinson completed her PhD in the UNSW economic history department in the 1980s.
[289] M. Davies, 'Bullocks and rail -- The South Australian Mining Association 1845-1870', *Australian Economic History Review*, 17, 2, 1977.
[290] G. Blainey, *A land half won*, South Melbourne: Macmillan, 1980, pp.362; Dingle and Merrett, 'Home owners and tenants', p.21; K. Alford, *Production or reproduction?: An economic history of women in Australia, 1788-1850*, Melbourne: Oxford University Press, 1984, 'author note'.
[291] B. R. Davidson, *European farming in Australia: An economic history of Australian farming*, Amsterdam, New York: Elsevier Scientific Publishing Co. , 1981
[292] A. Wells, *Constructing capitalism: An economic history of eastern Australia, 1788-1901*, Sydney: Allen & Unwin, 1989, p.viii.
[293] ANU economists such as Gruen, Corden, and Gregory were connected to the RSSS economic historians, with UNSW economists such as Nevile, Rao and Perry connected to the ANU group through David Pope.
[294] Blainey, *A land half won*, p.367, 369, 374.
[295] Alford, *Production or reproduction?*, 'author note'.

and John Mulvaney's help on Indigenous history and migration.[296] Valentine acknowledged discussion with Schedvin, which was motivated by their common interest in the 1930s Depression rather than a similarity in approach.[297]

Sub-authorship was a less constrained form of interaction, with scholars able to engage with each other despite geographic distance.[298] More outward-looking behaviour, through incrementally lower transport and communication costs, and more overseas hires and training, meant that sub-authorship with those overseas was more prevalent in the 1970s and 1980s. Members of the ANU group had sub-authorship ties to prominent North American economic historians such as Mary MacKinnon, Jeffrey Williamson, Bill Parker, Walt Rostow, Deirdre McCloskey and Alexander Gerschenkron.[299] These connections stemmed from a combination of the visiting scholars program at the ANU, and Australian scholars' visiting positions overseas.[300] These connections were, in turn associated with a greater integration of the Canberra community with the North American approach to the subject.[301] Nicholas had connections to economic historians in Britain through his visiting position at the University of Reading in the 1980s, acknowledging discussion and feedback from Mark Casson, Peter Hart, Colin Ash, Tim Worral, Ann Walker, Roderick Floud and Ann Gregory.[302] The comparative work of those in the Melbourne community forged connections with scholars in Argentina, particularly Ezequiel Gallo. Duncan and Fogarty travelled to Argentina, and then hosted Gallo at the University of Melbourne in 1976.[303]

These sub-authorship roles highlight that less constrained foci contributed to collaboration across disciplinary boundaries, or across vast geographic distance. This relatively 'open' focus encouraged diversity of the economic history community, and led to the examination of old questions in new ways. For example, Gregory and Butlin's *Recovery* used the latest theoretical modelling and statistical techniques to examine Schedvin's

---

[296] N. G. Butlin, *Our original aggression*, Sydney: George Allen & Unwin, 1983, p.xii; N. G. Butlin, 'The palaeoeconomic history of aboriginal migration', *Australian Economic History Review*, 29, 2, 1989, p.3.
[297] Valentine in Maddock and McLean, ed. *Australian economy*, p.61.
[298] See chapter 3.
[299] D. Pope, 'Rostow's Kondratieff cycle in Australia', *The Journal of Economic History*, 44, 3, 1984, p.729; Gregory and Butlin, *Recovery*, p.1; G. Withers, 'Immigration and economic fluctuations: An application to late nineteenth-century Australia', *Australian Economic History Review*, 17, 2, 1977, p.131.
[300] Noel Butlin, Pope, McLean and Pincus had visiting positions in the US in the 1970s and 1980s.
[301] See the discussion of the knowledge network in chapter 9.
[302] Nicholas, ed. *Convict workers*, p.x.
[303] Duncan and Fogarty, *Australia and Argentina*, p.xii-xiii.

original conclusions about the role of government policy in the Great Depression.[304] The engagement of overseas scholars increased the research capacity of the Australian group, encouraging antipodean examples of international issues in economic history such as comparative economic development,[305] global migration and indentured labour,[306] and long-term business cycles.[307] While sub-authorship did encourage communication with diverse actors to a greater extent than other forms of collaboration, there was still clustering of ties around existing social and intellectual groups. Overall, sub-authorship, combined with co-authorship and contributors to edited works, concentrated communication and interaction within each local community.

8.4. Mediating the local enclaves

Co-location, joint activities, and collaboration each largely reinforced the social and intellectual enclaves that developed at each university in the 1970s and 1980s. The combined social network highlights this, with Figure 8.11 indicating very dense ties between scholars in the same university and, to a lesser extent, the same city. Oral history sources confirm the localisation of social ties, with scholars recalling only limited contact outside each group. Hutchinson has highlighted the insularity of the ANU, UNSW and Melbourne communities, and Statham has commented that the Western Australian group was very separate from universities in the eastern states.[308] Blainey and Merrett argued that there was particular distance between the Melbourne and Canberra economic history groups, with very little social contact or collaboration.[309]

These location-based communities were mediated, to some degree, by 'boundary spanners' who held diverse co-location and collaboration ties. The social networks visually place these scholars in between larger clusters, indicating that they had the potential for relationships with colleagues in different locations. David Pope is an excellent example, with co-location ties to those in Melbourne, Sydney and Canberra reflected in his

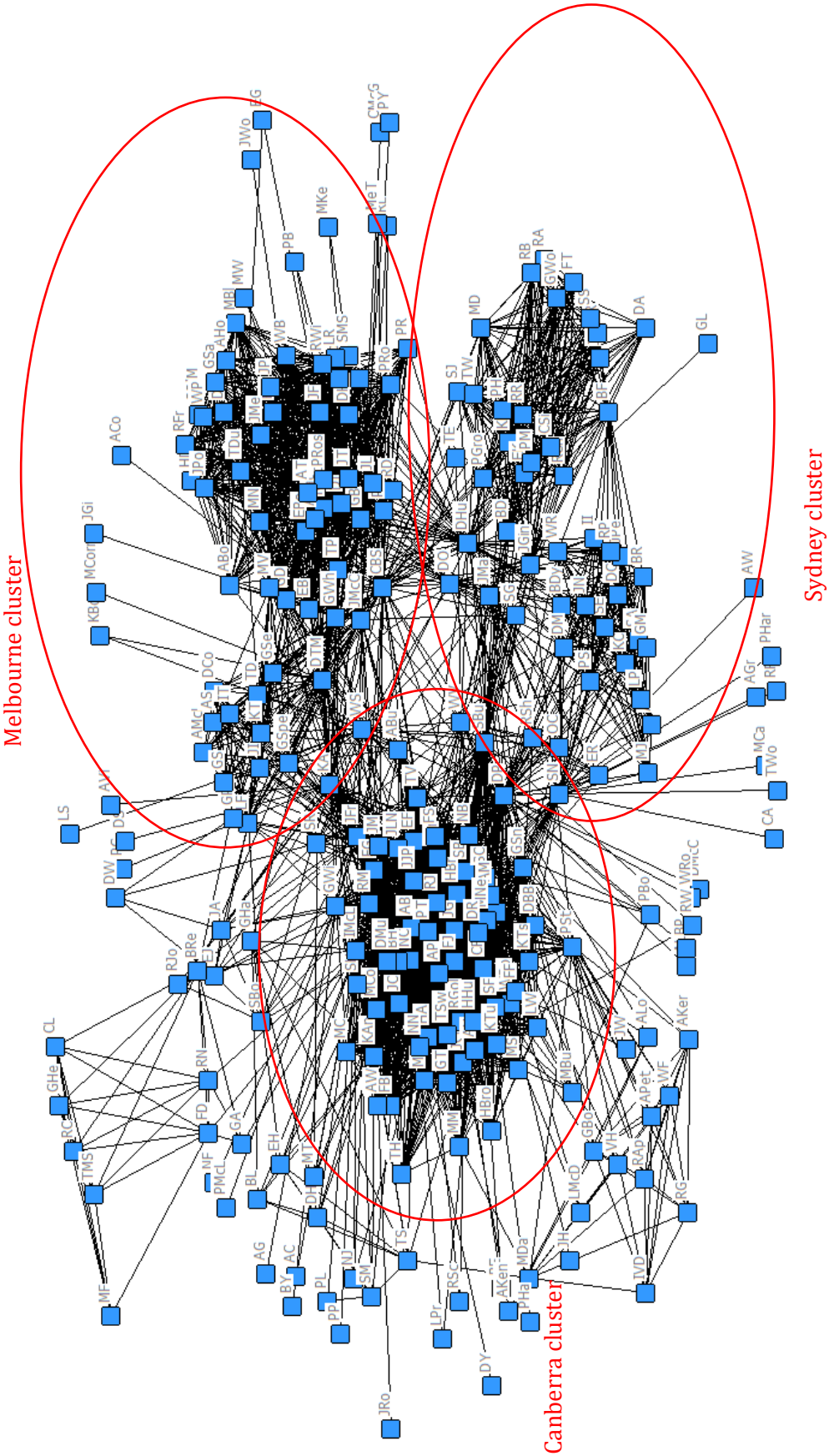
---

[304] Schedvin was thanked by Valentine in his chapter about the Depression in Maddock and McLean's volume: T. J. Valentine, 'The Depression of the 1930s', in Maddock and McLean, ed., *The Australian economy in the long run*, Melbourne: Cambridge University Press, 1987, p.61.
[305] Duncan and Fogarty, *Australia and Argentina*.
[306] Nicholas, ed. *Convict workers*.
[307] Pope, 'Kondratieff cycle'.
[308] Hutchinson; Statham interviews.
[309] Blainey argued that when he went to the ANU he would more likely go to the history department, and that he rarely saw Butlin in Melbourne. Merrett commented that his perception was that the Canberra group was very much separate to the other communities. Blainey; Merrett interviews.

collaboration links. Pope contributed a chapter to Maddock and McLean's *The Australian economy* (Figure 8.6) and participated in the conference for Butlin and Gregory's *Recovery*, all while working at UNSW.[310] Figure 8.8 indicates Pope's diverse sub-authorship ties. He acknowledged members of the Monash group in his 1971 article; a mixture of Monash, ANU and UNSW colleagues in his 1982 article; and ANU scholars in his 1987 text.[311] In Figure 8.11, Pope's combination of diverse co-location and collaboration ties mean he is placed in the intermediary region between the UNSW and ANU clusters, with other connections to the Monash group. Table 8.3 reports selected centrality scores for the combined social network. Pope's *betweenness* score is amongst the highest in this community, confirming his role as a bridge between different social communities. Pope has been remembered as a very social person, hosting dinner parties and other events with colleagues.[312]

[310] See acknowledgments in M. W. Butlin and P. M. Boyce, 'Monetary policy in Depression and recovery', in Gregory and Butlin, ed., *Recovery from the Depression*, Cambridge: Cambridge University Press, 1988, p.193.
[311] Pope acknowledged McCarty, Sinclair, and Merrett in D. Pope, 'Viticulture and phylloxera in North-East Victoria', *Australian Economic History Review*, 10, 1, 1971, p.21; Nevile, Nicholas, Rao, Perry from UNSW, Pincus from ANU, Merrett from Monash in D. Pope, 'Price expectations and the Australian price level: 1901–30', *Economic Record*, 58, 4, 1982, p.328; Noel Butlin and Withers thanked in D. Pope, 'Australian capital inflow, sectional prices and the terms of trade: 1870-1939', *Australian Economic Papers*, 25, 46, 1986, p.67.
[312] G. Withers, 'David Hewitt Pope, 1944-2007', *Australian Economic History Review*, 49, 2, 2009,

Figure 8.11: Overall social network, 1971 - 1991



Others were prominent in this network by spanning various geographic communities. Table 8.3 shows that Schedvin had the highest *betweenness* score in this community. Schedvin's co-location connections to those in Sydney and Melbourne, and his diverse collaboration ties are responsible for his prominence in the social network. McLean, similarly, had high *betweenness* due to his editorship of one of the major works, his ties to scholars in Canberra and Adelaide, and his role as a bridge between economists and the main economic history community. Hutchinson had a high *betweenness* score, which was primarily due to her diverse co-location ties in the 1980s. Alford, Nicholas, Syd Butlin, and Withers also had high *betweenness* scores, due to their co-location and collaboration connections. Noel Butlin's *betweenness* score shows that although he was the preeminent economic historian in terms of published works, other scholars were more important for developing social connections in this community. Butlin was very prominent within the ANU group, but had a smaller role in connecting scholars in different communities.

Location-based enclaves were also mediated by more 'open' national infrastructures that brought geographically and methodologically disparate scholars together to discuss ideas. The community's main journal, the *AEHR*, was established in the 1950s, and throughout the 1960s it took an important role in disseminating the field's research. Ownership and management of the journal was transferred from the economics group at the University of Sydney to the newly formed EHSANZ in 1974, becoming the flagship publication of the Australian economic history field. As in the earlier decades, interaction in this focus was motivated by *mutual interest*. While the journal had limited influence in the propagation of the orthodox approach in the 1960s, the 1970s and 1980s were characterised by greater prominence for the *AEHR*. The corpus of texts determined for this thesis indicates a roughly equal number of total pages of research published in Australian economic history in the 1950s and 1960s compared with the 1970s and 1980s, but a three-fold increase in the number of pages that were published in the *AEHR*.[313] This was partially due to timing, with the journal's establishment in the late-1950s precluding it from publishing 1950s research. It was also partially due to a redirection of research output, with scholars gradually shifting from publishing in other outlets (such as the *Economic Record*) to submitting to the *AEHR*. It was also due to changing norms for publishing in this field, specifically from publishing monographs to publishing articles. 61% of individual texts were journal articles in the first period, with this share rising to 85% in the second period.

[313] 419 pages in 1950 – 1970; 4858 pages in 1971 – 1991. See Appendix D.

These descriptive statistics indicate that journal articles, specifically articles in the *AEHR*, became a major focus for the field in the 1970s and 1980s.

Table 8.3: Centrality, combined social network 1971 – 1991

	ID	*Betweenness*	*Betweenness as % of base value*
Schedvin, CB	CBS	3734	100
McLean, IW	IMcL	3610	97
Pope, D	DP	3375	90
Hutchinson, D	DHu	2815	75
Nicholas, S	SN	2045	55
Alford, KA	KA	1990	53
Butlin, NG	NB	1659	44
Withers, G	GWi	1516	41
Butlin, SJ	SBu	1387	37
Snooks, G	GSn	1280	34
Mackie, JAC	JM	1068	29
Merrett, DT	DTM	1044	28
Blainey, G	GB	885	24
Davison, G	GD	781	21
Gregory, RG	RGr	743	20
Jackson, RV	RJ	715	19
Pincus, JJ	JJP	700	19
Statham, P	PSt	696	19
Whitwell, GJ	GWh	681	18
Sinclair, WA	WS	654	18
Reece, BF	BRe	647	17
Beever, EA	EB	628	17
Freebairn, JW	JFr	617	17
McCarty, JW	JMcC	586	16
Oxley, D	DO	571	15
Davidson, BR	BD	568	15
Perry, TM	TP	532	14
Gruen, F	FG	492	13
Boehm, EA	EBo	431	12
Maddock, R	RM	429	12

Note: Top 30 scholars ordered by *betweenness*. *Betweenness* is measured as the proportion of shortest paths to other nodes that pass through the particular actor. As the highest-scoring scholar, Schedvin's *betweenness* is taken as the base value. Average *betweenness* for the top 30 scholars is 1231. Average for the whole sample is 150.

This is supported by the oral history evidence, with Sinclair and Merrett arguing that the *AEHR* was a key part of the professionalisation of Australian economic history in the 1970s and 1980s.[314] The biggest challenge for the journal was in soliciting good contributions and then trying to "knock them into shape".[315] This was a consistent phenomenon throughout this period, with Schedvin for the early 1970s, Sinclair for 1974 – 1985, and Dingle and Merrett for 1985 – 1988 each separately recalling this characteristic of editorship. Merrett has argued that he and Dingle got involved in the journal due to his connection with McCarty and Schedvin at Monash, commenting that the more senior scholars "passed on" responsibility for the publication.[316] This demonstrates the social forces at play when assigning new editors, and accounts for the relatively greater involvement of Melbourne scholars in the journal. McCarty, Schedvin, Sinclair, Dingle, and Merrett each took a turn editing, with these scholars representing the core group of Melbourne economic historians in the 1970s and 1980s. Comparatively, the other four journal editors during this period – Ginswick, Rimmer, Snooks, and Pincus, were spread out between Sydney, Canberra and Adelaide. Other scholars were involved as Editorial Advisory Board members, including Henning, McLean, Pope, and Robertson in the 1980s.[317]

The EHSANZ was established in around 1970, although the details of this remain unclear. There has been very little agreement amongst oral history sources with respect to the society. Schedvin has argued that Forster and Barnard were the early leaders of the EHSANZ, with Pincus, Trace and Dingle all involved at a relatively early stage. Dingle on the other hand has argued that the initiative came from Sinclair. Merrett and Dingle have commented that their perception was that the ANU community "didn't really pull its weight" with respect to the EHSANZ, though ANU economic historians have commented that they were involved early on.[318] Nicholas was adamant that Schedvin was not very involved in the conference and society, though Statham has argued that Schedvin was often the stand-out participant.[319] Hutchinson has argued that the UNSW group was not heavily involved, commenting that during her PhD in the late-1970s she was the sole representative at the meeting held at the University of Sydney only a few suburbs from

---

[314] Sinclair; Merrett interview.
[315] Dingle/Davison interview, 1:05:40.
[316] Merrett interview.
[317] *AEHR* 1988, 28:2, 'Editor's notes'.
[318] Boot argued that he and John Gagg organised the first few conferences, and that it was Noel who "announced" the beginnings of the Society. Boot interview.
[319] Nicholas; Statham interviews.

their home base. Documentary sources can clear up some of this confusion. In the 1980s, the 'Editor's notes' section of the *AEHR* reported on EHSANZ meetings. In 1988 there was a changeover in leadership, with ANU scholars Forster, Barnard and Gagg thanked as the outgoing President, Secretary and Treasurer respectively for the preceding six years.[320] Schedvin, Anderson, Trace, Boot and Whitwell were inducted as EHSANZ leaders at this time.[321]

The activities of the EHSANZ, the *AEHR*, and the conference were intertwined. Interviewees made very little distinction between the nature, or participants, in the conference and society. The *AEHR* was integrated into these activities through the EHSANZ's ownership of the publication, the use of the publication to report on society meetings, and through, as Merrett has argued, editors using annual conferences to solicit articles. Although the Melbourne community was more heavily involved in the journal, Boot has argued that scholars "made clear that no university was going to control" the EHSANZ overall, with conferences held every year (or perhaps every other year) in Sydney, Melbourne, Canberra, Perth and Brisbane.[322] Papers were generally full-length, running for an hour or an hour and a half. The conference and the journal favoured Australian work, with Pope's report on the 1988 meeting indicating three of the five conference 'themes' were Australian-based, with one on regional and global economic history, and the other on Europe.[323] Graduate students were also involved in the conference in the 1980s, with specific sessions dedicated to discussion of doctoral projects.[324]

The main effect of these professional organisations was that they increased communication between scholars in different locations. Schedvin, Pincus, and Dingle have argued that through the EHSANZ and *AEHR*, they had contact with scholars in other cities.[325] Pincus has commented that through his involvement with the journal and the society, he was probably aware of most scholars working in the field, and Schedvin has argued that he probably had more to do with co-editor Gordon Rimmer and other contributors than he did with his colleagues at home. Statham has argued, due to her

---

[320] *AEHR* 1988, 28:2, 'Editor's notes'.
[321] Schedvin as President; Anderson as Secretary; Trace as Treasurer; Boot and Whitwell as Executive Committee Members. See *AEHR* 1988, 28: 2, 'Editor's notes'.
[322] Boot interview. Dingle; Jackson also recalled that the conferences moved around a bit.
[323] *AEHR* 1989, 29:1, 'Editor's notes'.
[324] *AEHR* 1989, 29:1, 'Editor's notes'.
[325] Dingle commented that "we circulated around, and it meant that all the economic historians were in contact with each other". Dingle/Davison interview, 35:40.

relative isolation in Perth, that the conferences were particularly important for networking with potential collaborators, including Wray Vamplew and Noel Butlin. The conferences may have also increased interaction between economic history and adjacent disciplines, with Schedvin arguing that there was good attendance by scholars who would not necessarily call themselves traditional 'economic historians'.[326] Official conference records confirm that there was explicit integration between the economic history meetings and those of parent disciplines, with the 1986 conference in Adelaide coinciding with the annual meeting of the Australian Historical Association, and the 1988 conference held at the ANU as part of the annual Economics Congress.[327]

There were exceptions of course, with Maddock arguing that although he attended the conferences, he did not really interact with scholars unless they visited the ANU. Members of the UNSW group were also quite insular, socialising mostly amongst themselves.[328] Pincus, similarly, argued that although he was aware of most scholars in Australian economic history, he had no special connection to them as a result of conferences or the journal. However, the evidence overall suggests a collegial atmosphere, with the journal, society and conference co-ordinating the activities of the field at the national level.[329]

These professional organisations also increased the dissemination of ideas within this intellectual community. Merrett has argued that the journal was particularly important after the publication of Noel Butlin's 1960s volumes, as it allowed for "experimentation" about the new shape of published work in the field. Sinclair has argued that during his time as editor he did not encourage any particular 'style' of economic history, leaving it up to authors to report results using their preferred methodology. It thus allowed publication of work from a variety of intellectual traditions. Some direction was given in the form of themed issues on urban history, and comparative economic development between Australia and Argentina.[330] The journal's emphasis on these themes was directly related to the research interests of the Melbourne group, and the greater involvement of Melbourne scholars in editorship of the journal. By encouraging a variety of approaches, the journal

---

[326] There were exceptions to this though, with Shergold struggling to recall any involvement from history-based scholars like Blainey, and Dingle recalling an instance where Noel was quite "unpleasant and rude" to a historian conference participant. See Shergold; Dingle/Davison interviews.
[327] *AEHR* March 1986; *AEHR* 1988, 29: 1, 'Editor's notes'.
[328] Shergold; Hutchinson interviews.
[329] The exception was Dave Clark at UNSW, with a number of scholars recalling that the nature of the conference was impaired by his harsh criticism. Schedvin; Dingle/Davison interviews.
[330] These resulted in edited collections, discussed above, by McCarty and Schedvin, and Dingle and Merrett. Dingle has specifically recalled the themed issue on Australia and Argentina. Dingle/Davison interview.

reflected – rather than enforced – the intellectual character of the Melbourne group in the 1970s and 1980s.

By the end of the 1980s, the contents of the journal were directed in a different way – towards a general broadening of readership and methodology. Pincus has argued that he and Graeme Snooks deliberately tried to attract more submissions in Asian economic history, arguing that they would try to widen the scope of the journal to include a range of economic, social and business issues.[331] Schedvin also became the General Editor of a series of booklets entitled 'Themes in Australian Economics and Society History' at around this time. These were pitched at upper high school and undergraduate students, as well as the general reader, with Dingle contributing on the Aboriginal economy, Jackson on population, Lougheed on Australia in the world economy, Bate on the gold rushes, Macintyre on labour, and Whitwell on the rise of consumer society.[332] These attempts to widen the readership and appeal of economic history may have been in response to external threats to appointments and students in the field, and the fragmentation between different approaches.[333]

Though the available evidence paints a complicated, and sometimes contradictory picture of the origins, nature, and operation of the journal and society, what is clear is that there was no single proponent of these activities. Instead, these activities emerged through collective action on the part of many scholars. Professional structures were necessitated by, and reinforced, the "flowering of appointments" in economic history, providing a nation-wide focus through which scholars could share ideas.[334] As weaker, more 'open' forms of interaction, they allowed scholars from different locations and intellectual traditions to communicate. At the same time, by being less intense and less frequent, professional organisations were only partially able to overcome the social enclaves that developed at each institution. While a positive social and intellectual forces on their own, they were not enough to reverse the insularity of professional connections between economic historians in the 1970s and 1980s.

---

[331] Pincus and Snooks, 'Editorial reflections'.
[332] See *AEHR* 1988, 28: 2, 'Editor's notes'.
[333] See further discussion of this in chapter 9.
[334] Dingle/Davison interview.

8.5. The decentralisation of the social network

Australia's economic history field in the 1970s and 1980s was characterised by an expanding staff, greater social and professional organisation and more joint work. Whereas the ANU dominated PhD training, seminars and departments of economic history in the 1950s and 1960s, the latter decades were characterised by the development of activities in other cities. Joint activities transformed proximity between scholars into communication and collaboration, with dense interactions amongst those in Canberra, in Melbourne, and in Sydney. Dense social ties in each local community led to targeted communication about research, and a convergence of intellectual trends. The social structure thus contributed to the 'spatial placement of ideas' in the 1970s and 1980s. Enclaves of social and intellectual relationships were mediated, to some extent, by individual scholars who were 'boundary spanners'. National infrastructures also fostered communication between scholars beyond these locational groups. However, these formed the minority of total interactions, and so were not sufficient to overcome the social enclaves that developed in this period.

In the 1950s and 1960s, the dominance of Canberra in fostering ties between scholars meant that the growth of the economic history field was, largely, an intellectual movement. In the 1970s and 1980s however, decentralisation of social interactions, and corresponding diversity of intellectual trends, meant that the field did not follow the trends anticipated for intellectual movements. Rather than 'maturity' through clear paradigms and hierarchies, Australia's economic history field developed several clear perspectives, each with their own leaders, activities, and traditions.

9. The knowledge network 1970 – 1991

9.1. Approach

The decentralisation of social ties in the 1970s and 1980s contributed to a broad split in practice between Canberra and Melbourne. While the orthodox approach remained dominant in the community as a whole, in Canberra this tradition was transformed into a more deductive and statistical form. Diverse collaborative connections in Melbourne were associated with a broad approach to the subject that integrated with the humanities and social sciences.

9.1.1. Continuation of the orthodox approach

Regardless of geographic location, the orthodox approach continued to be the dominant methodology in Australia's economic history field in the 1970s and 1980s. Noel Butlin maintained his intellectual influence in the group, and much of the published work at this time drew upon Butlin's earlier contribution. Oral history sources largely agreed on the influence of Butlin, commenting on his innovative research, and his determined pursuit of primary sources.[1] Table 9.1 presents centrality scores for the citation network, with *in-bonacich power* scores indicating prominence in this network based on the number and range of colleagues who cited the particular node. This confirms Butlin's prominence, as he received the highest number and widest range of citations in this community.[2] Other orthodox scholars – including Syd Butlin, Schedvin, Boehm, Hall, Sinclair, Keating, Hughes, Barnard, and Dowie – were amongst the most influential scholars in the community at this time.

Some of the work continuing the orthodox tradition was written by Butlin himself, extending his initial estimates back to 1788 in two articles (one of which was co-authored with Sinclair) for the *AEHR*.[3] Butlin also compiled the statistical base for *Recovery* (edited with Bob Gregory) and *Government and capitalism* (co-authored with Barnard and Pincus). These volumes, similarly to Butlin's work in the 1960s, were influential for both interpretation and for developing Australia's historical statistical infrastructure.

---

[1] Boot; Davison; Dingle/Davison; Gregory; Macintyre; Pincus; Sinclair; Troy interviews.
[2] His pre-eminent *in-bonacich power* score indicates that most others in the network were quite dependent on his work. *In-degree* scores reveal that 55 of a possible 73 individual authors cited Butlin at least once, which is the widest breadth of citers in this corpus.
[3] N. G. Butlin, 'Contours of the Australian economy 1788-1860', *Australian Economic History Review*, 26, 2, 1986; Butlin and Sinclair, 'Australian gross domestic product'.

Table 9.1: In-degree and in-bonacich power, citation network 1971 - 1991

	In-degree	*In-bonacich power*	*In-bonacich power as % of base value*
Butlin, NG	55	10753	100
Coghlan, TA	40	9209	86
Butlin, SJ	36	8721	81
Forster, C	28	7510	70
Blainey, G	35	7374	69
Schedvin, CB	31	7330	68
Boehm, EA	27	7145	66
Hall, AR	32	7124	66
Sinclair, WA	24	6354	59
Hancock, K	19	5974	56
Giblin, LF	20	5934	55
Keating, M	22	5341	50
Holder, RF	17	5057	47
Wilson, R	15	4929	46
Gregory, RG	20	4863	45
Dunsdorfs, E	20	4831	45
Butlin, MW	18	4761	44
Clark, C	22	4741	44
Hughes, H	18	4669	43
Crawford, JG	16	4653	43
Barnard, A	23	4637	43
Walker, ER	14	4576	43
Arndt, HW	14	4512	42
Crisp, LF	10	4464	42
Dowie, JA	19	4338	40
Williams, DB	11	4328	40
Hancock, WK	17	4257	40
Gollan, R	15	4253	40
Fitzpatrick, B	17	4248	40
McCarty, JW	21	4078	38

Note: Top 30 scholars ordered by *in-bonacich power* score. *In-degree*, indicates how many other scholars in the sample cited the actor. *In-bonacich power* indicates prominence from the actor being cited by a number of otherwise disconnected authors. As the highest-scoring scholar, Butlin's *in-bonacich power* score is taken as the base value. Average *in-bonacich power* for the top 30 scholars is 5699. For the whole sample, the average is 553.

Part of Butlin's influence was by training younger economic historians at the ANU. While oral history sources have suggested that Butlin was discouraging or overbearing for younger scholars,[4] he certainly influenced others to practice within his methodology. Many of the PhD students of the 1960s explicitly adopted the orthodox approach in their

[4] Cornish; Gregory; Macintyre; Merrett; Pincus; Schedvin interviews.

theses.[5] They began to publish their results in the late 1960s and early 1970s, generally doing so within the orthodox tradition. Bambrick's work on Australian price series, some of McLean's work on Victoria's agricultural industry, an article by Pope on immigration in the early twentieth century, and Keating's thesis on the Australian workforce and employment, all emerged from PhD studies in the RSSS.[6] Snooks wrote a Masters thesis on Western Australia's experience of the Great Depression, and deliberately set the thesis within what he called 'the Butlin method'.[7] Snooks then went on to work with Butlin for his PhD in the 1970s.

Younger scholars showed a dependence on the orthodox approach through citations. Keating, McLean, Pope and Snooks particularly cited Butlin widely (across most works in this period) and with intensity (often multiple times in each text). They generally mimicked Butlin's methodology by presenting quantitative estimates on the economy, and inferring inductively from these aggregate, macroeconomic data. These works were also an augmentation of Butlin's original contribution, as they filled in gaps, or offered improvements to the original social accounting measures. Keating's workforce figures were intended to complement Butlin's estimates.[8] Snooks explicitly studied the economic experience of WA because Butlin's *Domestic product* did not account for regional variations in Australia's performance.[9] Bambrick's price series was an implicit attempt to improve the accuracy of Butlin's estimates.[10] McLean, Pincus, and Richardson augmented Butlin's statistics (which demonstrated stagnating living trends between 1900 and 1939) to include a wider variety of social indicators such as income inequality, physical

---

[5] See discussion of the knowledge in chapter 7.
[6] M. Keating, 'The Australian workforce and employment 1910 - 1960', *Australian Economic History Review*, 7, 2, 1967; S. Bambrick, 'Indexes of Australian import prices, 1900 to 1927-28', *Australian Economic History Review*, 8, 1, 1968; I. W. McLean, 'The Australian balance of payments on current account 1901 to 1964-65', *Australian Economic Papers*, 7, 10, 1968; S. Bambrick, 'The 'C' Series: Its sins of commission and omission', *Australian Economic History Review*, 9, 1, 1969; Keating, *Australian workforce*; McLean, 'Adoption of harvest machinery'; D. Pope, 'Contours of Australian immigration, 1901 - 30', *Australian Economic History Review*, 21, 1, 1981.
[7] This includes his main monograph, G. Snooks, *Depression and recovery in Western Australia 1928/29 - 1938/39*, Nedlands: University of Western Australia Press, 1974, and a series of smaller articles, Snooks, 'Regional estimates'; G. Snooks, 'Depression and recovery in Western Australia, 1928-29 to 1938-39: A deviation from the norm', *Economic Record*, 49, 127, 1973; G. Snooks, 'The arithmetic of regional growth: Western Australia 1912/13 to 1957/8', *Australian Economic History Review*, 19, 1, 1979.
[8] Though the thesis was completed with Haig (in the RSSS) and Youngman (of the ABS), the publication of the thesis as a monograph was insisted upon by Noel. He wrote the preface, and led the edit of the monograph. See Keating, *Australian workforce*, p.8.
[9] See criticisms of Butlin's national aggregations in Snooks, *Depression and recovery*; Snooks, 'Regional estimates'.
[10] See the discussion of Butlin's contribution in chapter 7.

infrastructure, education, life expectancy, and length of the working week. Inferring inductively from these various trends, they argued that there was no indication of stagnating living standards over this period, but that there was greater income inequality during the depression.[11] McLean also attempted to improve the standard Balance of Payments and rural workforce estimates, synthesising work from Butlin and Roland Wilson in the former, and the Butlin-Dowie series and Keating's estimates in the latter.[12]

Vamplew's edited statistical volume, published for the Australian bicentennial in 1988, was part of the orthodox tradition by updating the field's quantitative infrastructure. This volume contained historical statistics on a number of different social, environmental, political and economic phenomena, with chapters on economic growth, population, labour, housing and agriculture authored by members of the economic history community. This volume presented statistics and the methods of calculation, demonstrating the continued importance of quantitative material for Australian economic history.

A number of textbooks emerged in the 1970s, two of which were within the orthodox tradition. Texts by Jackson and Boehm, on the nineteenth and twentieth centuries respectively, were designed for undergraduates. They recognised the need to synthesise the wealth of literature that had emerged in the economic history field in the post-WWII period.[13] Jackson has argued that he had no aims to be original, with the book emerging from the confusion of his students when confronted with Butlin's dense volumes.[14] Citations indicate the particular intellectual debt that Jackson and Boehm's texts had to the orthodox school, citing Butlin's work frequently.[15] Jackson and Boehm both used considerable quantitative material, and inferred conclusions inductively. The only economic theory emerged in a similar way to Butlin – from their judgement about the most important areas of growth in the economy.[16] Though neither Jackson nor Boehm were members of the RSSS community, they both had a history of intellectual interaction

---

[11] McLean and Pincus, 'Australian living standards'; McLean and Richardson, 'More or less equal?'.
[12] McLean, 'Australian balance of payments'; McLean, et al., 'Rural workforce'.
[13] R. V. Jackson, *Australian economic development in the nineteenth century*, Canberra: ANU Press, 1977, pp.vii-viii; E. A. Boehm, *Twentieth century economic development in Australia*, Melbourne: Longman, 1971, preface.
[14] Jackson interview; Jackson, *Australian economic development*, pp.vii-viii.
[15] Jackson cited Butlin's work more than any other. Boehm cited Butlin third most, behind himself and Joe Isaac.
[16] Both Jackson and Boehm focus on population, exports, manufacturing and government policy, with Jackson's nineteenth century discussion including construction, urbanisation and the development of banking, and Boehm's including a substantial section on capital accumulation.

with Butlin.[17] Schedvin has similarly argued these textbooks were crucial in "giving shape" to Noel's initial contribution.[18] The qualitative, oral history, and citation sources confirm continued influence of the orthodox school in the Australian economic history community.

There were other instances of the orthodox approach outside of Butlin's immediate circle, with the presentation of aggregate quantitative data by Syd Butlin, Alan Hall and Reserve Bank of Australia (RBA) officer RC White for the banking industry.[19] However, purely quantitative texts did remain in the minority outside of Canberra. While substantial quantitative material was used, it was generally presented alongside documentary or archival sources. Merrett showed a dependence on Syd Butlin's quantitative material, as well as qualitative sources, to discuss banking prudential standards and the 1890s depression.[20] Beever used both official statistical sources, as well as qualitative company reports and magazine articles to analyse Australia's growth in the 1840s.[21] Texts by Davies, Davidson, Lougheed, and Statham balanced quantitative material and qualitative sources.[22] Pope's work published from his Monash Masters thesis examined aggregate production figures for Victoria's viticulture industry, and qualitative sources such as correspondence and company reports.[23]

Quantification and the use of statistical sources thus remained an important part of the economic history community. Outside of Canberra, there was relatively less reliance on official aggregated statistics, and greater use of documentary or archival sources. This suggests both the consistency of the orthodox school within Canberra, and the diversity of approaches that were adopted elsewhere. The emphasis on quantitative material within

---

[17] Boehm had engaged with Butlin's orthodox contribution in the 1960s, see chapter 7. Jackson's PhD was on a part of Butlin's estimates, which Butlin examined. Jackson interview.
[18] Schedvin interview.
[19] S. J. Butlin, 'Tasmanian bank deposits, 1865-1902', *Australian Economic History Review*, 15, 1, 1975; S. J. Butlin, 'Australian bank branches 1817-1914', *Australian Economic History Review*, 17, 2, 1977; S. J. Butlin, A. R. Hall and R. White, *Australian banking and monetary statistics, 1817-1945*, Sydney: Reserve Bank of Australia, 1971. Schedvin then 'popularised' Butlin's RBA volume, interpreting the statistics and offering an explanation of their significance, in a piece of *Economic Record*. See C. B. Schedvin, 'A century of money in Australia', *Economic Record*, 49, 128, 1973.
[20] D. T. Merrett, 'Australian banking practice and the crisis of 1893', *Australian Economic History Review*, 29, 1, 1989.
[21] E. A. Beever, 'The pre-gold economic boom in Australia 1843-1851', *Australian Economic History Review*, 19, 1, 1979.
[22] Davidson, *European farming*; Davies, 'Bullocks and rail'; A. L. Lougheed, 'The cyanide process and gold extraction in Australia and New Zealand 1888-1913', *Australian Economic History Review*, 27, 1, 1987; P. Statham, 'A new look at the New South Wales Corps, 1790-1810', *Australian Economic History Review*, 30, 1, 1990.
[23] Pope, 'Viticulture and phylloxera'.

the ANU community foreshadowed the group's transformation of the orthodox school into a more statistical and deductive form.

9.1.2. The orthodox school transformed

While the orthodox approach remained prominent, Canberra-based scholars adopted a more theoretical and statistical method in the 1970s and 1980s. This work was largely propagated by those who emerged from the orthodox tradition, with scholars concurrently publishing pieces with both an orthodox and deductive approach. Sinclair's 1976 volume is demonstrative. Similar to the orthodox textbooks of Boehm and Jackson, Sinclair aimed to unify the post-WWII literature to describe Australia's "continuing process of economic development" since 1788.[24] Sinclair has argued that his text "probably arose from the Butlin work", with Butlin encouraging him to pursue the connection between economic theory and economic history.[25] The citation analysis also confirms the dominant role that Butlin's texts played in this volume.[26] However, it was an adaptation of the orthodox approach, outlining a deductively determined staples thesis framework, and using this to explain Australia's economic development. While there was no statistical 'test' of this theory, Sinclair did discuss the extent to which this theory was valid in the Australian case.[27] Sinclair thus synthesised the work of the orthodox school, but transformed it into a more deductive and theoretical form.

Maddock and McLean's *The Australian economy*, published in 1987, was a natural extension of the work of the orthodox school. Contributors were either economists, or economic historians who favoured the approach of economics.[28] The editors commented that they "relied mainly though not exclusively on the methods employed and questions posed by economists", analysing a standard economists' framework over time.[29] The volume was divided into chapters on the factors of production, the internal/external sector, and the private/public sector, thus providing an *analysis* of the components of the economy, rather than a narrative of overall economic change. Gregory and Butlin's

---

[24] Sinclair, *Process of economic development*, foreword.
[25] Sinclair interview.
[26] Sinclair cited Noel Butlin over 50 times in this 250-page book. This was only slightly less than Jackson (62 citations in Jackson, *Australian economic development*).
[27] Sinclair's conclusion is that the staples/region of recent settlement framework is indeed valid until the 1920s.
[28] See the analysis of collaboration ties in chapter 8.
[29] Maddock and McLean, ed. *Australian economy*, p.1. Maddock has also argued that they set the volume within a 'standard economists' framework'. Maddock interview.

Recovery was also a theoretical and deductive transformation of orthodox writings. Through an ANU source paper, Butlin established the common quantitative series for the volume, with Valentine using this statistical material to test a theoretically determined model of the labour market.[30] Both edited volumes showed social integration with the economics discipline, engaging economists as chapter authors, sub-authors, and participants at conferences.[31] They also both indicated distance from the history discipline, with no use of primary qualitative sources (except for the occasional government report).

Table 9.2: Citation similarity descriptive statistics, edited works

	1950 - 1970	*1971 - 1991*	*Abbott and Nairn eds.*	*Forster ed.*	*Maddock and McLean*	*Gregory and Butlin*	*Convict Workers*
Number of authors	40	73	12	6	11	9	6
Average similarity	0.12	0.17	0.09	0.2	0.25	0.37	0.25
Median similarity	0.03	0.09	-0.02	0.014	0.21	0.33	0.012
Number of highly-correlated pairs	8	40	0	0	1	1	1

Note: Citation similarity determined through *bibliographic coupling*. Similarity between authors indicates common citations (including each other's work).

Citation analysis indicates that there was greater consistency of secondary material included in the Canberra-based edited works, compared to the rest of the corpus. Table 9.2 presents descriptive statistics of the citation similarity scores in Appendix F. Chapters in *Recovery* had an average citation similarity of 37%, and chapters in *The Australian economy* had 25% similarity.[32] Citations in these volumes were more congruent than the 17% average similarity across the whole corpus. The Canberra-based texts were also more consistent than the other main edited work – *Convict workers*. Though the average citation similarity of *Convict workers* was about the same as Maddock and McLean's volume, this average was skewed upwards by high similarity between Nicholas and Shergold due to their co-authorship on a number of chapters. This was combined with very low (or negative) similarity amongst the remaining authors. As a result, while the average

[30] See Valentine, 'The Depression'.
[31] See discussion of contributors and sub-authors in chapter 8.
[32] Citation similarity for chapters in these volumes have been determined in the same way as for the whole sample – by estimating a similarity matrix in *UCINET*. See section 9.3 for a detailed examination of overall citation trends.

similarity for *Convict workers* was 25%, the median (indicating the degree of variance) was 1%. Comparatively, average similarity and the median score for the Canberra edited works were close, with 37% and 33% respectively for *Recovery*, and 25% and 21% for *The Australian economy*. These descriptive statistics indicate that in addition to greater consistency in methodology, the Canberra-based edited works were also more consistent in terms of the pieces of knowledge each scholar drew on.

The wider economic history community recognised that these volumes were 'economists' economic history'. The main reviewers - McCarty, Boot, Schedvin and Snooks - welcomed these edited volumes as valuable contributions to the field.[33] However, the close relationship with economics was criticised, with McCarty arguing that the reader was "given no sense of the total pattern of historical change".[34] Snooks similarly criticised the mechanical nature of *The Australian economy*, "because it tells economists what they want to hear – that reality is a simple rather than a complex process".[35] Snooks then argued that this restricted the practice of economic history:

> "To limit the role of economic history in this way is to do a disservice not only to economic history but also to economics. One of the major contributions that analytical economic history can make to the wider discipline of economic studies […] is to convey the complexity of reality, a complexity that often eludes (but does not necessarily invalidate) the simplicity of economic models".[36]

These edited volumes provided an important focus for the economics-based perspective of the Canberra economic historians, with other pieces rounding out their contribution to this approach. McLean published pieces that improved Butlin's original statistics, and then used these data to either statistically test the validity of a model, or the relationship between different variables.[37] Research into Australia's labour market also used orthodox

---

[33] J. W. McCarty, 'Review: Maddock and McLean, "Australian Economy in the Long Run" and Gregory and Butlin, "Recovery from Depression"', *Australian Historical Studies*, 24, 95, 1990; G. Snooks, 'What should economists be told about the past? A review article', *Australian Economic History Review*, 30, 2, 1990; H. M. Boot, 'Review: Maddock and McLean, "The Australian Economy in the Long Run"', *Economic Record*, 64, 186, 1988; C. B. Schedvin, 'Shorter notices', *English Historical Review*, 108, 426, 1993.
[34] McCarty, 'Review: Maddock and McLean; Gregory and Butlin', p.300.
[35] Snooks, 'A review article', p.92.
[36] Snooks, 'A review article', p.92.
[37] McLean's main deductive works included using aggregate statistics of rural production in Victoria to show technological change as specified in Solow's growth model, McLean, 'Growth and technological change'; and quantitatively testing the potential causes of agricultural productivity change, I. W. McLean, 'The analysis of agricultural productivity: Alternative views and Victorian evidence', *Australian Economic History Review*, 21, 1, 1981. See also McLean's collaboration with

school quantitative material to test whether minimum wage regulations increased unemployment during the Great Depression.[38] Forster adopted the orthodox approach for a piece that examined the impact of the minimum wage on unemployment, while also writing a more deductive piece that tested the relationship between various socioeconomic factors and the fertility rate.[39] Sinclair published a piece for *Historical Studies* that used the orthodox methodology to infer conclusions from quantitative data of female workforce participation in Melbourne; and another for *Economic Record* that used these data to test a theoretical model about the operation of the labour market.[40] Pope and Withers, both separately and together, wrote a number of pieces that examined theoretically-determined motivations and effects of immigration.[41] Pope, at the same time, also published an article in the *AEHR* that used the orthodox approach to outline trends found in Australian immigration data.[42]

The approach of the orthodox school, and the more deductive, economics-based work was thus intertwined, with scholars moving between the two approaches, and showing an explicit reliance on the contributions of the orthodox school. This was partially because the move into more deductive work was a natural step for the orthodox approach to take. Detailed and high quality quantitative material was required before statistical tests could be made, with scholars attempting to improve Butlin's original series before using these data to test models. Greater social engagement with economists, and US cliometricians also meant that RSSS economic historians were more exposed to, and more sympathetic towards, the *de rigueur* methodology of economics.[43] Maddock, Pincus, and McLean have

---

Maddock which used quantitative material to examine the validity of the Dutch disease model of economic growth for Australia's gold discoveries of the 1850s, Maddock and McLean, 'Supply-side shocks'.

[38] They used either P. Macarthy, *The Harvester Judgment - An historical assessment*, Doctor of Philosophy, Australian National University, 1967; Butlin and Dowie, 'Estimates'; Keating, *Australian workforce*. See D. Pope, 'Wage regulation and unemployment in Australia: 1900-1930', *Australian Economic History Review*, 22, 2, 1982; W. A. Sinclair, 'Was labour scarce in the 1830s?', *Australian Economic History Review*, 11, 2, 1971; T. J. Valentine, 'A model of the Australian labour market in the interwar period', *Australian Economic History Review*, 20, 1, 1980.

[39] C. Forster, 'Aspects of Australian fertility, 1861-1901', *Australian Economic History Review*, 14, 2, 1974.

[40] W. A. Sinclair, 'Women at work in Melbourne and Adelaide since 1871', *Economic Record*, 57, 4, 1981; W. A. Sinclair, 'Women and economic change in Melbourne 1871–1921', *Historical Studies*, 20, 79, 1982.

[41] G. Withers, 'Immigration and economic fluctuations: an application to late nineteenth-century Australia', *Australian Economic History Review*, 17, 2, 1977; Withers and Pope, 'Immigration and unemployment'; D. Pope, 'Some Factors Inhibiting Australian Immigration in the 1920s', *Australian Economic History Review*, 24, 1, 1984.

[42] Pope, 'Contours'.

[43] See a description of these connections in chapter 8.

specifically commented that their connections to Australian economists, and US cliometricians, meant they were more inclined to adopt that style of work in their own.[44] Connection to the US was also responsible for a deductive methodology from non-RSSS economic historians, with Shlomowitz, and Nicholas and Shergold, examining indentured labour markets in a comparable way to the US cliometricians' work on slavery.[45]

More quantitative and deductive work thus emerged in Australian economic history through two streams. From within Australia, the approach was a natural outgrowth of the orthodox school, and the community's greater engagement with the economics discipline. Deductive economic history was also partially imported, with connections to US economic historians influencing key scholars.

9.1.3. Analytical economic history

The orthodox and quantitative-deductive work formed the majority of texts published in Australian economic history. Meanwhile there was also a core group of scholars who advocated a qualitative and realist approach that held more cues with the history discipline.[46] There was greater concentration of this approach in Melbourne, with major monographs by Davison, Blainey, Alford, and Duncan and Fogarty utilising qualitative sources such as reports, government proceedings, letters and contemporary cultural objects.[47] Davison adopted an analytical approach, despite being connected socially and intellectually to the RSSS economic history group earlier in his career.[48] Davison has since recalled (with Dingle's agreement) that the urban history thesis he completed at the ANU was quite quantitative and statistical, being influenced by the orthodox school environment in which it was completed.[49] However, Davison commented that his thesis

---

[44] Maddock; Pincus; McLean interviews.
[45] Shlomowitz examined Melanesian labour in Queensland, see Shlomowitz, 'Institutional equilibrium'; R. Shlomowitz, 'The profitability of indentured Melanesian labour in Queensland', *Australian Economic History Review*, 22, 1, 1982. Nicholas and Shergold examined the labour market outcomes of convicts, see chapters in Nicholas, ed. *Convict workers*.
[46] As in chapter 7, the analytical school adopted a realist and narrative-based methodology. Quantitative data may have been used, but it was rarely aggregated. Instead, scholars were more concerned with describing real instances of economic change. See chapter 5 for a description of the works of the analytical school.
[47] Alford, *Production or reproduction*; Blainey, *A land half won*; G. Davison, *The rise and fall of Marvellous Melbourne*, Melbourne: Melbourne University Press, 1978; Duncan and Fogarty, *Australia and Argentina*.
[48] Davison almost studied for his PhD in the economic history group of the RSSS, and engaged in similar issues of urbanisation as Butlin did in *Investment*. See chapter 6 for a discussion of this.
[49] Dingle/Davison interview.

was "fairly unpublishable" in that form, and that the monograph that emerged a decade later was much more related to the history discipline.[50] Though Butlin remained the most cited author, McCarty and Serle also had substantial attributions.

Duncan and Fogarty's comparative work on Australia and Argentina was also more closely related to the history discipline. The aim of the book was to represent the "current state of a scholarly relationship between the two countries", meaning that most sources were secondary or qualitative.[51] There was very little use of quantitative material, and realist elements emerged particularly with discussions of the main political figures in both countries.[52] Their citations favoured work from diverse sources – including Gallo and Diaz-Alejandro from Argentina, and themselves, Butlin, and Forster, from Australia. Whitwell's *The Treasury line*, from his University of Melbourne thesis, adopted a realist approach for analysing economic policy, examining the education and ideas of Treasury policy-makers.[53] Sources were generally qualitative correspondence or reports. Citations favoured the economics discipline, though generally these were economic analyses of the time, used to demonstrate the events and perspectives of policy-makers.

Blainey's *A land half won* continued his tradition of using primarily qualitative sources and vividly recreating characters from Australia's past.[54] His citations certainly favoured the history discipline, citing himself, Coghlan, Serle, and Kiddle with the most frequency. Alford, in the first substantial text on Australian feminist economic history, utilised qualitative sources such as correspondence, reports and images, and illustrated her arguments through extensive case studies of women's participation in the public and private labour force.[55] Like others in the analytical tradition, Alford engaged with historians, citing Manning Clark, Windschuttle, Coghlan, Pike and Robson most frequently. As in the 1950s and 1960s, the prominence of analytical scholars was primarily through *betweenness*. Table 9.8 presents *betweenness* scores for the 1971 – 1991 corpus. It indicates that Blainey, Dyster, Alford, Fogarty, Duncan, and Whitwell were prominent in

---

[50] Davison interview. Davison, *Marvellous Melbourne*. Elements of this can be seen in an early article for the AEHR, see G. Davison, 'Public utilities and the expansion of Melbourne in the 1880s', *Australian Economic History Review*, 10, 2, 1970.
[51] Duncan and Fogarty, *Australia and Argentina*, p.xiii.
[52] Gough Whitlam for Australia, and Juan and Eva Peron for Argentina featured heavily in their discussion.
[53] G. Whitwell, *The Treasury line*, Sydney: Allen & Unwin, 1986.
[54] Blainey, *A land half won*.
[55] Alford, *Production or reproduction?*. This volume was written initially as a PhD thesis at the University of Melbourne, under the supervision of Alan Beever.

this community by connecting the economic history literature to different domains, particularly the history discipline.

Qualitative and realist work was adopted by key economic historians who acted as 'bridges' between the methodology of economics and history. These bridging scholars were found in greatest numbers in Melbourne, with Sinclair, Schedvin, Dingle, Merrett and McCarty at home with both the economics analysis of the Canberra group, and the history-based approach of analytical scholars. Sinclair, for example, adjusted his approach depending on the research question and the publication outlet, using quantitative material to test a theoretically-determined model in a piece for *Economic Record*, but using a combination of qualitative and quantitative sources for an article on the same topic for *Historical Studies*. Sinclair's aim with these two pieces on women's participation in the workforce, was to demonstrate that "the insights of the economist can yield relevant findings" to historical questions, and that historical data can yield useful theoretical insights about the nature of the labour market.[56]

Collaboration also formed a conduit between Melbourne scholars and the history discipline. The collections of essays on urban history, edited by McCarty and Schedvin in the 1970s, included historians. Essays used a substantial proportion of qualitative sources such as newspaper and city council reports. Dingle and Merrett's collection on Australia and Argentina was similar, with contributions using only limited quantitative material, and incorporating realist elements such as culture and the characteristics of specific politicians, alongside the classical economic categories of land, labour and capital.[57] Sub-authorship ties between Melbourne-based scholars and those in the history discipline reflected and reinforced the broad approach of this group.[58] On an interpersonal level, connections between the Monash economic history group and Davison, and between the Melbourne economic history group and Blainey, forged links between the two domains of knowledge.[59]

---

[56] See Sinclair, 'Women and economic change', p.278; Sinclair, 'Women at work', p.352.
[57] Dingle and Merrett, ed. *Argentina and Australia*.
[58] See the description of sub-authorship in chapter 8. For comparison, there very little sub-authorship with historians in Canberra, Adelaide and Sydney.
[59] Davison: McCarty collaborated with Davison on the *Australians, 1888* volume (which is not part of this corpus). Dingle and Davison recalled their substantial social contact while at Monash, and Schedvin argued that Davison was his main contact in the Monash history group. Dingle/Davison interview.
Blainey: Moved from the economic history group to the history department in 1976. Blainey interview, University of Melbourne Calendar 1977.

While Melbourne became a major hub for this form of economic history, other instances of the analytical approach were found elsewhere. Tom Sheridan, despite training at the RSSS and working alongside orthodox scholar McLean at the University of Adelaide, used qualitative sources and realist elements in his published work on BHP.[60] Eric Richards, similarly, used primarily qualitative and archival sources to analyse the development of secondary industry in South Australia.[61] In Canberra, Barnard, Cain, and Tsokhas adopted a qualitative and realist approach in some of their work.[62] Much of Cain's contribution in this period was a discussion of economic thought, planning and policy during the Great Depression. Doing so necessarily required the use qualitative sources, and a realist discussion of the main policy-makers in the 1930s. Wotherspoon discussed the banking industry, disaggregating his data to indicate the size, number, and distribution of individual deposits, while also using qualitative material such as correspondence.[63] These scholars consistently steered away from the work of the orthodox school, often citing no orthodox scholars in their work. The only exception was Cain, who cited his RSSS collaborator Haig relatively frequently.

While texts adopting the analytical approach were either criticised or largely ignored in the 1950s and 1960s, the more qualitative works in this period were recognised by some as an important part of the economic history field. Dingle argued that Davison's *Marvellous Melbourne* "vividly recreate[d] the complex and sometimes ambiguous realities of city life". McCarty agreed that Davison successfully reconciled the "conflicting demands of narrative and structure", incorporating social, economic, geographical and ideological aspects of Melbourne's history.[64] Similarly, Sinclair considered Blainey's *A land half won* a

---

[60] T. Sheridan, 'Aspects of decision making in a monopoly: BHP and the 1945 steel strike', *Australian Economic History Review*, 22, 1, 1982.
[61] Richards was initially a part of the economic history department at Flinders, but moved to the history group in 1976. Flinders Calendar 1976.
[62] A. Barnard, 'Wool brokers and the marketing pattern, 1914-20', *Australian Economic History Review*, 11, 1, 1971; N. Cain, 'Political economy and the tariff: Australia in the 1920s', *Australian Economic Papers*, 12, 20, 1973; N. Cain, 'The economists and Australian population strategy in the twenties', *The Australian Journal of Politics and History*, 20, 3, 1974; N. Cain, 'Recovery policy in Australia 1930-33: Certain native wisdom', *Australian Economic History Review*, 23, 2, 1983; N. Cain and S. Glynn, 'Imperial relations under strain: The British-Australian debt contretemps of 1933', *Australian Economic History Review*, 25, 1, 1985; K. Tsokhas, ''A touch of Midas': The rise of Western Mining Corporation, 1945-1975', *Australian Economic History Review*, 24, 2, 1984.
[63] G. Wotherspoon, 'Savings banks and social policy in New South Wales 1832-1871', *Australian Economic History Review*, 18, 2, 1978.
[64] A. E. Dingle, 'Book Review: Davison, G. 1978. The Rise and Fall of Marvellous Melbourne, Melbourne, Melbourne University Press.', *Australian Economic History Review*, 21, 1, 1981, p.67; J. W. McCarty, 'Melbourne, Ballarat, Sydney, Perth: The new city histories', *Historical Studies*, 19, 74, 1980, p.1.

"general, largely economic, history of the period of white settlement to the end of the nineteenth century", and Hutchinson argued that Alford's *Production or reproduction* was an important contribution to the economic literature on the nature and value of women's work.[65] Duncan and Fogarty's narrative approach was seen as "interesting and informative" by McCarty, though Canberra scholar Maddock dismissed the volume as "not to be read closely for its economics or economic history".[66] McLean has similarly commented that Australian work done outside of Canberra was not sufficient in maintaining his interest in the field, and Gregory has recalled that Butlin perceived those who adopted the analytical approach as "lightweights".[67]

The acceptance of the analytical approach by the economic history community was thus mixed. Analytical texts were reviewed well within the Melbourne group, but had a more dismissive reaction within the ANU community. This was indicative of the more integrative vision of economic history that was characteristic of those in Melbourne, and the more limited (albeit more consistent) conception of the field found within the RSSS. Citation analysis supports this, with low levels of citation of analytical works by the corpus. Table 9.1 indicates that although Blainey had high prominence through *in-bonacich power*, he was exceptional compared to others in the analytical tradition.

9.1.4. The overall shape of methodology

The approach of the analytical school remained in the minority in the Australian economic history field. This trend was particularly noticeable in the major contributions to the field at this time, with the three textbooks of the 1970s, and the major edited works of the 1980s all adopting either the orthodox approach, or a more theoretical and deductive form of quantitative analysis. Table 9.3 presents the proportions of texts in the corpus that fell within the three major intellectual traditions, based on the qualitative classification of texts and with each text weighted for its number of pages. This indicates that there was an increase in the work published in the analytical tradition in the 1970s and 1980s, from 22% to 27% of the sample. In particular, this approach attracted a lot of published work in

---

[65] W. Sinclair, 'Review: Blainey, "A land half won"', *Australian Economic History Review*, 22, 1, 1982, p.79; D. Hutchinson, 'Review: Alford, "Production or reproduction?"', *Australian Economic History Review*, 26, 1, 1985.
[66] R. Maddock, 'Review: Duncan and Fogarty, "Australia and Argentina"', *Economic Record*, 61, 174, 1985, p.685; J. W. McCarty, 'Review: Duncan and Fogarty, "Australia and Argentina"', *Australian Economic History Review*, 26, 2, 1986, p.196.
[67] McLean interview. Gregory has commented that Butlin thought scholars at the "literary end" of economic history, like Blainey, were lightweights.

the 1980s, with the share growing to 32% of the sample in that decade. However, the analytical approach was still a minor category, ahead of the share of the quantitative-deductive tradition (11%) but less prominent than the orthodox tradition (56%) in the 1970s and 1980s.

Table 9.3: Proportion of pages in each intellectual tradition, whole corpus

	Pages in sample	*Analytical*	*Orthodox*	*Quantitative-deductive*
1950s	3896	9.50%	65.40%	14%
1960s	6696	30.50%	60%	11.70%
1970s	4745	20.80%	68.60%	9.40%
1980s	5,763	31.90%	44.70%	11.85%
1950 – 1970	10,592	22.80%	62%	12.5%
1971 – 1991	10,508	26.90%	55.50%	10.75%

Note: Broadly, the *analytical* tradition was characterised by the use of qualitative sources and a realist presentation. Texts in the *orthodox* tradition used aggregated quantitative material, and inductive analysis. *Deductive* texts tested a particular theory through advanced statistical analysis.

The output of the journal more or less reflected this. Whereas the journal's output was skewed towards the analytical approach in the earlier decades, the development of the *AEHR* into a specialist economic history publication meant its contents more closely reflected the mix of approaches in the community. Table 9.4 presents the proportion of work, in the *AEHR*, in each of the main intellectual traditions.[68] It indicates that the share of pages in the journal that adopted the analytical approach decreased substantially in the 1970s and 1980s, from 58% to 25% of the sample. However, this conceals an even larger drop in share in the 1970s (to 17%), and some recovery in the 1980s (to 31%). These descriptive statistics indicate that there was comparatively little work done in analytical economic history in the 1970s, and greater representation in the 1980s.

Analysis of the whole corpus reveals that there was greater diversity of published work in Australian economic history in the 1970s and 1980s. The number of pages adopting the orthodox methodology dropped from 62% to 56% of the sample, with gains in the proportion published in the analytical tradition (23 to 27%), and a slight decrease in quantitative-deductive work (13 to 11%). This conceals important changes within these two decades, with the 1970s characterised by convergence on the orthodox methodology (to 69%), and the 1980s by divergence between the main traditions.

[68] Defined for the purposes of this study in chapter 4.

Table 9.4: Proportion of pages in each intellectual tradition, AEHR

	Pages in sample	*Analytical*	*Orthodox*	*Quantitative-deductive*
1950s	28	100%	0	0
1960s	422	54.70%	26.80%	22.30%
1970s	724	16.70%	60.60%	20.90%
1980s	803	31.40%	41.35%	24.10%
1950 – 1970	450	57.55%	25.10%	20.90%
1971 - 1991	1513	24.65%	50.95%	23.20%

Note: Broadly, the *analytical* tradition was characterised by the use of qualitative sources and a realist presentation. Texts in the *orthodox* tradition used aggregated quantitative material, and inductive analysis. *Deductive* texts tested a particular theory through advanced statistical analysis.

The amount of orthodox economic history published, as a proportion of the whole corpus, rose from 60% to 69% in the 1970s. These gains were driven, in part, by methodological consistency within the journal, with the share of orthodox work published in the *AEHR* increasing from 27% in the 1960s, to 61% in the 1970s. Correspondingly, the proportion of work done in other traditions decreased, with total texts adopting the analytical methodology decreasing from 30.5% in the 1960s to 21% in the 1970s, with even greater decreases within the journal (55% to 17%). Work done in the deductive approach decreased slightly, remaining the smallest category. These descriptive statistics indicate that at the height of the field's expansion in the 1970s there was general agreement that the orthodox approach was the most appropriate, with the approach then diverging in the 1980s between the quantitative-deductive texts of the Canberra group, and the qualitative and realist methodology adopted in Melbourne.

Oral history sources support the 'spatial placement ideas', with scholars identifying differences between intellectual trends in Melbourne and Canberra. Merrett has recalled that:

> "My sense is that they [at the ANU] saw themselves as different, and somewhat better than the rest of us. I mean, not in a pompous, nasty sort of way, […] but there was more rigour to their world".[69]

Hutchinson, similarly noted a 'schism' between Melbourne and Canberra, arguing that while Melbourne researchers used quantitative data, they did so without statistical testing or explicit economic theory.[70] Gregory has agreed that Canberra had the greatest concentration of those who adopted a quantitative and statistical approach to the

[69] Merrett interview.
[70] Hutchinson interview.

subject.[71] Other ANU scholars generally had trouble recalling research that went on outside of Canberra, though they were aware of resentment and competitiveness from those in Melbourne.[72]

Scholars also recalled some antagonism between the different groups and their approaches to the subject. Dingle has mentioned an incident when prominent historian Ken Inglis attended one of the economic history conferences in Canberra. His presentation about the 'slices approach to history', which McCarty and other Melbourne economic historians were working on, was met with unpleasantness from Butlin.[73] Statham has argued that the majority of economic historians were not interested in her work because, in the 1980s particularly, "they were really pushing the quantitative side of economic history, which sort of left me out in the cold".[74] Schedvin has argued that the broad approach of the journal was criticised from within the quantitative and deductive school, commenting that "Ralph Shlomowitz […] used to get stuck into us, saying this is a dreadful journal, it should all be like Fogel".[75]

This divergence in approach emerged, to some extent, through citations. There was greater diversity of citations, and a greater proportion of highly-correlated authors in the 1970s and 1980s. This suggests a divergence between various pockets of tightly-knit scholars. There was a key group of Canberra scholars that had high levels of citation similarity and adopted a common approach, though this grouping is not definitive. For the Melbourne group, there is very little in the citation analysis to suggest their shared methodology translated to a convergence of citation patterns. A more detailed discussion of the citation analysis follows the examination of interpretation, below.

Citations are, in this case, an imperfect measure of intellectual trends for Australia's economic history community. Nevertheless, there is substantial qualitative and oral history evidence to support the 'spatial placement of ideas'. Approach was associated with local environments: training, collaboration, and seminars contributed to a convergence of methodology between scholars in the same university or the same city. The development of dense social enclaves thus contributed to several well-developed methodological perspectives in the 1970s and 1980s.

---

[71] Gregory interview.
[72] McLean; Maddock; Boot interviews.
[73] Dingle/Davison interview. "Noel turned up, and he was very unpleasant and rude to Ken, about slices approach […] and he more or less said 'well, economic historians have nothing to contribute to this approach', but of course John McCarty was heavily involved".
[74] Statham interview.
[75] Schedvin interview.

9.2. Interpretation

Joint activities in Canberra, Melbourne, and Sydney also led to the clustering of interpretive frameworks at this time. While interpretation generally diverged between internalist and externalist economic history in the 1950s and 1960s, expansion of scholars, joint activities and collaboration led to engagement with a number of different frameworks in the 1970s and 1980s. There was a flurry of comparative work done by those in Melbourne in the 1980s, a focus on the interaction between public and private sectors by those in Canberra, and an emphasis on indentured labour by economic historians at UNSW. Other interpretations such as the staples framework, the small open economy model, and the standard internal/external categories continued to attract scholarship, albeit in smaller numbers.

9.2.1. Comparative economic history

Research done within a comparative framework – inspired by the work of Fernand Braudel and Marc Bloch of the *Annales* School – was particularly associated with the economic history community in Melbourne. While Braudel does not explicitly emerge in the citation analysis, Dingle has argued that "Braudel was a great inspiration for [McCarty]".[76] McCarty adopted the *Annales* School emphasis on the *longue durée* and comparative determinants of economic change such as geography, institutions and culture.[77] McCarty criticised the previous emphasis of historians that assumed "that the history of their own country is unique", arguing that structural, geographical or institutional similarities between different regions should be the basis for determining patterns of development.[78] Countries like Australia, the US, Canada, Argentina, and New Zealand, could be compared using frameworks such as Blainey's theory of mineral discovery, Turner's frontier thesis, or the staples approach.[79] Fogarty, another key proponent of the comparative approach, responded to McCarty's initial article, arguing that the use of general frameworks was "fraught with the danger of attributing

[76] Dingle/Davison interview. Bloch, on the other hand, was consistently cited by Melbourne scholars.
[77] Merrett; Dingle/Davison interviews. See chapter 5 for a discussion of the main elements of the *Annales* School.
[78] McCarty, 'Australian capital cities', p.109; McCarty, 'Region of recent settlement'.
[79] McCarty, 'Australian capital cities'.

explanatory significance to any observable differences in experience".[80] Though McCarty and Fogarty differed in the extent to which they recommended using economic theory, they both advocated comparative economic history based on broad geographical, political, or cultural elements.

The comparative approach became an important interpretive framework within the wider Melbourne economic history community, with the economic development of Australia and Argentina yielding a number of contributions. Duncan and Fogarty wrote a volume comparing the two nations' common imperial history and development of primary exports, which emerged from Duncan's PhD on the subject.[81] Duncan and Fogarty argued that different political institutions – Australia with a stable democratic government and Argentina with an unstable totalitarian government – caused a divergence in their economic development. This volume was socially integrated with the Argentinian economic history field, with Duncan co-supervised by Ezequiel Gallo in Buenos Aires, and with visits, conferences, and collaborations between Melbourne and Argentina.[82] As is to be expected, many of the citations in this volume are of Argentinian works, including Carlos F. Diaz Alejandro, Ezequiel Gallo, and Fogarty's own collaborations with Argentinian scholars.[83]

Dingle and Merrett's edited collection, which was based on a conference and collaboration between (mostly) Melbourne-based economic historians, was another key expression of the comparative framework. Each author offered a different conclusion on this theme, with Boulding first outlining a theoretical framework of possible reasons for divergence between two countries. Fogarty emphasised the export sector, arguing that dynamism in the Australian and Argentine economies was dependent on increased productivity in the rural export sector rather than industrialisation. Duncan then argued that it was differences in the party system in each nation that caused divergence in their performance.[84] Finally, Schedvin commented that while there were differences in resource

---

[80] J. P. Fogarty, 'The comparative method and the nineteenth century regions of recent settlement', *Historical Studies*, 19, 76, 1981, p.428.
[81] Duncan was supervised by Fogarty at the University of Melbourne. See Duncan, *Government by audacity*; Duncan and Fogarty, *Australia and Argentina*.
[82] Duncan and Fogarty, *Australia and Argentina*, p.xii-xiv; Duncan, *Government by audacity*, p.v.
[83] Duncan and Fogarty, *Australia and Argentina*.
[84] Specifically, nationalism and isolationism in Argentinian politics (with no institutional political checks) led to, at different times, creative or destructive outcomes for the economy. In Australia, bureaucracy and interest-based parties led to steady but mildly disappointing economic performance. Fogarty in Dingle and Merrett, ed. *Argentina and Australia*, p.56.

endowments and political relationships between the two countries from 1930, it was cultural norms (which may have then manifested as policy) that was the deciding factor.

This interpretive framework was distinctive from the comparative work written by scholars in Canberra. First, it was balanced, engaging more or less equally with socioeconomic determinants in each nation. Second, it engaged with the *Annales* concept of the *longue durée* by comparing long-term factors such as culture, geography, and political traditions. Third, by engaging with these longer-term determinants, this comparative framework incorporated aspects of the broader humanities and social sciences, which complemented the Melbourne group's tendency to adopt a broader methodology for economic history.

By including both University of Melbourne and Monash scholars, this interpretation was a city-based intellectual trend. Oral history sources have argued that there was good contact between the two institutions, with a joint seminar and official movement of scholars. Duncan, in his thesis on Argentina, thanked his supervisor, other members of the University of Melbourne economic history community, as well as Monash economic historian John McCarty. Dingle and Merrett have also highlighted McCarty's leadership in propagating this theme,[85] with McCarty's initial contribution to the journal, his engagement with Monash colleagues, and involvements with Duncan and Fogarty at the University Melbourne, giving credence to this attribution.

International comparisons were incorporated elsewhere, but rather than discussions of long-term factors parallels were drawn between Australia and other OECD nations. Comparisons of this nature were particularly characteristic of the main edited works to emerge from the Canberra community, with Maddock and McLean's 'Epilogue' arguing that Australia performed a little worse than other high-income nations over the twentieth century, and that this was due to domestic factors such as high rates of population growth, protectionist policies, rent-seeking behaviour, low levels of investment in human capital, and a long-term decline in export prices.[86] Gregory and Butlin's *Recovery* also placed emphasis on these international comparisons, with the first third of their volume dedicated to experience of the Great Depression in other high-income nations. The broad similarity of experience and recovery was emphasised, with some small differences in the

[85] Merrett; Dingle/Davison interviews. Davison has highlighted this, arguing that one of the elements he adopted from McCarty and the other economic historians was that "whenever I took history I taught it in a comparative way".
[86] Maddock and McLean, ed. *Australian economy*, p.348.

timing and depth of the downturn. When compared with other nations, the authors found that many of the unique factors that have been emphasised about Australia's Depression experience – namely the argument made by Schedvin that the growth of manufacturing was the driving force of recovery – were less significant.[87] Recovery was instead dependent on automatic stabilisers, international trade, and the devaluation of the currency.

Other members of the economic history community engaged with similar international comparisons. Haig and Martina compared Australia's development with other OECD nations, agreeing with Maddock and McLean that Australia's GDP per capita growth rate over the twentieth century was fairly low by international standards.[88] Butlin and Dingle each compared Australia's drinking habits with those in the UK, separately finding that Australia was not a nation with remarkably heavy alcohol consumption.[89] Schedvin used international comparisons to argue that Australia's monetary movements were more stable than either the UK or the US during the Depression.[90]

The key microeconomic, cliometric works were also comparative, arguing that indentured labour was part of a global system of migration. Shlomowitz compared the discussion of slavery in America's postbellum south with his study on Queensland's Melanesian indentured labour. Though he did not explicitly compare the two scenarios himself, he took Lance Davis and Douglass North's now famous analysis of slavery as given, aiming to provide an additional context in which these labour market mechanisms occurred.[91] *Convict workers* was also embedded within the global slavery literature, rejecting the "curious insularity of much Australian history which treats transportation and convictism as peculiarly Australian".[92] While the discussion focussed on how the convict labour system worked in Australia, there were comparisons with both the experience of free workers in Britain, and with other forms of coerced labour such as Indian/Melanese

---

[87] R. Gregory, V. Ho and L. McDermott, 'Sharing the burden: The Australian labour market during the 1930s', in Gregory, ed., *Recovery from the Depression*, Cambridge: Cambridge University Press, 1988, p.32. Schedvin's argument about the significance of manufacturing in the 1930s is found in Schedvin, *Australia and the great depression*.
[88] B. D. Haig, 'Australian economic growth and structural change in the 1950s: An international comparison', *Australian Economic History Review*, 18, 1, 1978; A. Martina, 'An aspect of the application of economic growth accounting in the analysis of Australian economic history', *Australian Economic History Review*, 17, 1, 1977.
[89] N. G. Butlin, 'Yo, ho, ho and how many bottles of rum?', *Australian Economic History Review*, 23, 1, 1983; A. E. Dingle, '"The truly magnificent thirst': An historical survey of Australian drinking habits', *Historical Studies*, 19, 75, 1980.
[90] Schedvin, 'Monetary stability'.
[91] Shlomowitz, 'Institutional equilibrium'; Shlomowitz, 'Indentured Melanesian labour'.
[92] Nicholas and Shergold, 'Unshackling the past', p.4.

bonded workers, American slaves, and other convicts. In particular, Nicholas and Shergold argued that the aims of convict transportation, the characteristics of convicts, and the work done by convicts when they arrived in the new location, was similar across the British Empire, India, and a number of other European powers at the time.[93]

The difference between the comparative approach of the Melbourne group, and comparative work written by other scholars, is that the latter held the *longue durée* as constant, focussing much more on short-term factors. Export prices were discussed rather than natural resource endowments, consumption figures rather than cultural norms, and specific policies rather than political traditions. This reflected a greater emphasis on the mechanics of economic theory from these scholars, rather than the broader humanities and social sciences approach of the *Annales* School. The macroeconomic, international comparisons of the Canberra group, and the microeconomic indentured labour comparisons were also used here to illuminate the specifics of the Australian case, rather than a detailed discussion of the comparator's context. It was thus more in line with an externalist approach by recognising that Australia's economy was part of a global system.

9.2.2. External/internal interpretations

Alongside these comparative works were those that highlighted Australia's interaction with the rest of the world. Maddock and McLean's edited volume adopted the 'small open economy model' as an interpretive framework, arguing that Australia's economy had been fundamentally shaped by its international economic relations. Collaborators were united by assuming that Australia was generally a price taker in world markets, that booms and slumps transmitted from overseas through primary export markets, and that foreign investment and immigration has played a substantial role in Australia's prosperity.[94]

The staples thesis was another key externalist framework. Sinclair adopted a 'modified' version of the staples thesis in his textbook, and has argued that he became exposed to it through an American proponent of the approach, and McCarty's article in the *AEHR* in the 1960s.[95] Rather than attributing everything to the development of export industries (as McCarty attempted to do), Sinclair took the position that export industries were the starting point from which other, internalist development occurred.[96] In this work, Sinclair

---

[93] Nicholas and Shergold, 'Global migration', pp.28-39.
[94] Maddock and McLean, ed. *Australian economy*, p.2.
[95] Sinclair interview.
[96] Sinclair interview; Sinclair, *Process of economic development*, p.4.

attempted to reconcile Noel Butlin's internalist interpretation with the other externalist work that had emerged in the field by this time.[97] Statham adopted a more faithful reproduction of McCarty's staples thesis, analysing the development of Western Australia's economy from the development of the Swan River Colony Commissariat.[98] Statham's analysis examined the validity of McCarty's model, agreeing that the Commissariat had a growth-engineering role, even without dependence on a convict base.[99]

Other scholars engaged in externalist interpretations through their focus on the role of export industries. Snooks, in his analysis of Western Australia's experience of the Great Depression, argued that growth in WA was dependent on the export of gold and wheat alternatively before 1939. Because of this dependence, the Depression had a more severe initial impact in WA due to falls in the global price of wheat, but recovery was initiated earlier through the re-transfer of labour to the gold industry in the 1930s.[100] Richards' discussion of South Australia's secondary industry was also externalist, arguing that manufacturing only developed to service export industries.[101] Davidson focussed on the agricultural industry, and although the study was largely a microeconomic analysis of farm profitability, his main argument was that Australian systems of agriculture were developed rapidly to meet the demands of the European market.[102] Gregory and Butlin's volume, similarly, placed Australia's Depression experience within the global economy, emphasising international trade and capital movements.[103] *Convict workers* was also externalist, arguing that not only were there opportunities for comparison between Australia and other indentured labour systems, but that developments elsewhere had a direct effect on the number and nature of Australian convicts. Although they were not the first to make this link, Nicholas and Shergold argued that the American War of Independence forced the British government to find an alternative location for convicts –

---

[97] Sinclair interview.
[98] McCarty had argued that Australia's growth was initially due to the supply of food to the NSW Commissariat. See McCarty, 'Staple approach'. Statham tested the assumption made by Abbott (in response to McCarty's article) that Commissariat demand could only be a staple while the colony remained a convict colony, by examining Commissariat demand for agricultural produce between 1829 and the introduction of convicts in 1850.
[99] P. Statham, 'The role of the Commissariat in early West Australian economic development', *Australian Economic History Review*, 24, 1, 1984.
[100] Snooks, 'Regional estimates'; Snooks, *Depression and recovery*.
[101] E. S. Richards, 'The genesis of secondary industry in the South Australian economy', *Australian Economic History Review*, 15, 2, 1975.
[102] Davidson, *European farming*, p.1.
[103] Gregory and Butlin, ed. *Recovery*, pp.26-7.

namely New South Wales.[104] There was thus significant recognition of Australia's place in the global system.

Internalist determinants of Australia's prosperity continued to be of interest. The substantial work done on urban history in the 1970s was inspired by Butlin's emphasis on non-rural industries and internal sources of growth. Davison's *Marvellous Melbourne* volume, for instance, focussed on the interaction of the city as a place of work, and the suburbs as a place where people lived. As an event that hit Melbourne the hardest, Davison engaged with the earlier debate about the timing and cause of the 1890s Depression, agreeing with Butlin's *Investment*, which argued that internal disequilibrium – in Davison's work this was the collapse of Melbourne land values and the maritime strike of the 1890s – occurred long before the Baring crisis of 1891. Davison has argued that Butlin's focus on urban areas in *Investment* was an inspiration for his work on urban history.[105] This is confirmed by the citation analysis, with Davison drawing on Butlin's work more than any other author.[106] Other work in urban history was also internalist, with Jackson, and Merrett and Dingle examining owner-occupation in Sydney and Melbourne respectively.[107] In each of these texts, the factors that provoked the development of cities and suburbs were internal ones such as population change, incomes, land costs, or city government policy.

Texts that focussed on the history of specific firms were also generally internalist. Schedvin examined the history of Lysaght Brothers & Co in the late nineteenth and early twentieth centuries, arguing that the firm was successful due to internal factors such as links with rural industry, technological advances, and the quirks of the natural environment.[108] Sheridan analysed BHP's industrial strategy in the 1940s, arguing that the firm's difficulties in this period were due to internal decision-making and inflexibility from company managers.[109] Snooks published a series of articles on Hume Enterprises in the early twentieth century.[110] He argued that the success of the firm at this time was largely

---

[104] Nicholas, ed. *Convict workers*, pp.29-31.
[105] Dingle/Davison interview.
[106] See Davison, *Marvellous Melbourne*. He cites Butlin 16 times in this volume. Blainey is next most prominent, with eight citations.
[107] These scholars contradicted a (relatively small) part of Butlin's 1960s work that argued that there was significant rates of owner-occupation in Australia R. V. Jackson, 'Owner-occupation of houses in Sydney, 1871-1891', *Australian Economic History Review*, 10, 2, 1970; Dingle and Merrett, 'Home owners and tenants'.
[108] C. B. Schedvin, 'Rabbits and industrial development: Lysaght Brothers & Co. Pty. Ltd, 1884-1929', *Australian Economic History Review*, 10, 1, 1970.
[109] Sheridan, 'Decision making'.
[110] These emerged from his ANU PhD in the early 1970s.

attributable to the ambition and drive of the entrepreneur, and that the upper limit of the firm's expansion was determined by factor shortages such as finance, capital equipment and skilled labour. Snooks assumed that these factors were exogenous to the firm itself, but internal to Australia.[111]

Other authors also examined microeconomic categories, but at an industry level, arguing that the success of rural industries was due to changing profitability or productivity rather than dependence on world markets. McLean analysed Victoria's agricultural industry in the late nineteenth century, arguing that growth in the industry was due to more efficient resource use, the adoption of harvest machinery, better farm practices, and natural elements such as soil composition and the weather.[112] Similarly, for the mining industry, Davies argued that the coming of railways probably made very little difference to profitability in the industry. Lougheed argued that locally-adapted technological advancements played an important part in the gold mining industry. Boot examined Queensland's pastoral industry in the late nineteenth century, arguing that their relatively better performance during the 1896 drought was due to internal factors such as lower debt burdens and better returns to capital.[113]

These examples highlight that scholars who adopted an internalist and externalist interpretation were largely unconnected in terms of social interactions, or in terms of approach. The main collaborations and joint projects generally incorporated a distinctive interpretive framework, rather than these general internal/external categories. Most texts in this community took the middle road – that Australia's development was partially attributable to both internal and external elements. Thus, while internalist and externalist interpretations were the main source of difference (and contention) in Australian economic history in the 1950s and 1960s, it became much less of an issue in the latter decades. Internalist economic history was expressed in a more consistent and deliberate way through an interest, mostly by the Canberra group, in the interaction of the public and private sectors.

---

[111] G. Snooks, 'Innovation and the growth of the firm: Hume Enterprises, 1910 - 1940', *Australian Economic History Review*, 13, 1, 1973; G. Snooks, 'Constraints on the growth of the firm: Hume Enterprises 1910 - 40', *Australian Economic History Review*, 14, 1, 1974.
[112] These conclusions remain more or less stable between these three articles: McLean, 'Adoption of harvest machinery'; McLean, 'Growth and technological change'; McLean, 'Agricultural productivity'
[113] H. M. Boot, 'Debts, drought, and foreclosure: Wool-producers in Queensland and New South Wales, 1870-1905', *Australian Economic History Review*, 28, 2, 1988.

9.2.3. The institutional turn

The role of government had been a theme in Australia's economic history community since Fitzpatrick's focus on the exploitative role of the British imperial government.[114] Butlin also examined this theme in the 1950s, with his 'colonial socialism' piece arguing that Australia's economy in the latter half of the nineteenth century was characterised by a partnership between government and private institutions. Government intervention, Butlin argued, was well-intentioned but was not well-executed, and did not respond well to market signals.[115] This theme formed an important part of Butlin's explanation of the 1890s Depression, with instability caused through a mix of private sector (residential construction) and public sector (railway construction) developments.[116] Schedvin, writing in the 1960s, also focussed on the impact of government policy, highlighting the effect of policy responses to the Great Depression. Schedvin discussed the formation of government policy, criticised the policy-makers' contractionary action, and argued that these policy choices played little part in shaping the course of the Depression in Australia.[117]

In the 1980s, Butlin and Schedvin's arguments were given further consideration by the Canberra economic history group. A simple version of Butlin's colonial socialism thesis was econometrically tested by Jackson, who argued that there was no direct short-run 'inversity' between public and private economic activity.[118] Sinclair also challenged Butlin's argument on the responsiveness of the public sector to price signals, arguing that in nineteenth century Melbourne, social overhead capital decisions were a response to the market rather than a deliberate policy.[119] In Gregory and Butlin's *Recovery*, contributors engaged with Schedvin's work on the role of government in the Great Depression. Their interpretation was more or less the same as Schedvin's, arguing that government policy was relatively unimportant in either depression or recovery.

Beyond these direct responses, joint activities in the 1970s and 1980s directed scholars' interest towards the interaction of Australia's public and private sectors. This was inspired, in part, by the 'institutional turn' within the international economics community,

---

[114] Fitzpatrick, *British empire*; Fitzpatrick, *British imperialism*.
[115] Butlin, 'Colonial socialism'.
[116] See the discussion of Butlin's contribution in chapter 7.
[117] Schedvin, *Australia and the great depression*.
[118] R. V. Jackson, 'Short-run interaction of public and private sectors in Australia, 1861-1890', *Australian Economic History Review*, 25, 1, 1985.
[119] W. A. Sinclair, 'Economic growth and well-being: Melbourne 1870-1914', *Economic Record*, 51, 134, 1975.

which emphasised the 'rules of the game', such as property rights and government rent-seeking.[120] However, the Australian economic history community consistently viewed the role of the State as much more than the rules in which economic agents operated. Instead, there was acknowledgment that Australia's history was one of both direct and indirect government intervention in the economy. Members of the ANU community were a key part of this interpretive framework, establishing a program on this theme within the RSSS department of economic history in the late-1970s, and hiring Rod Maddock specifically for the purposes of studying the nature and effect of government intervention. One of the main outputs was *Government and capitalism*, co-authored by RSSS colleagues Butlin, Barnard and Pincus.[121] The authors argued that the trend of government action was mixed throughout the twentieth century. The 'decline of colonial socialism' (direct intervention in the market) was matched by a rise in regulation and greater expenditure on welfare; the decline of direct poverty social policy was matched by greater 'welfare for all'; and the loss of market power by some public enterprises was matched by the gain of others. Overall, the authors argued that there was increasing dependence on government, but that the conflicting trends made it difficult to make an overall assessment.[122]

The interaction of policy with the macroeconomy was also a key aim of Gregory and Butlin's *Recovery*. Gregory has argued that the volume was motivated by the 1982-83 recession and the policy lessons that could be learnt from historical experience.[123] Beyond the explanations of Depression trends in chapters by Gregory, Thomas, and Davidson, all other chapters were primarily concerned with the way in which government policy helped or hindered the recovery process. The overall assessment was that government policy was not that important for Australia (except for a small positive role for the devaluation of the currency). Also from within the Canberra community, the public sector played an important role in Maddock and McLean's edited volume. Chapters by Pincus and McLean were dedicated to the role of government in promoting prosperity, and equality and wellbeing respectively. Pincus, consistent with his right-wing stance in *Government and capitalism*, was pessimistic about the role of Australia's government. He cited Mancur Olsen's theory that restrictive public and private practices slowed the rate of growth and

---

[120] Lloyd, 'Analytical frameworks', p.60.
[121] Butlin*, et al.*, *Government and capitalism*, p.ix. Although Maddock was hired to the project, he did not contribute to this volume. Pincus argued that Maddock was going to do a section on taxes, though Maddock has argued that he was never 'in' the project, so was never 'out' of it.
[122] Butlin*, et al.*, *Government and capitalism*, p.320.
[123] Gregory and Butlin, ed. *Recovery*, preface.

made the economy more vulnerable to shocks.[124] McLean argued that while Australians were better off than at Federation, these gains had not been distributed equally, despite heavily redistributive policies. Beyond these dedicated chapters, most of the other contributions to this volume had a substantial portion dedicated to the effect of economic policy.[125] The overall argument of the volume was that although the *size* of the government was not a cause of Australia's relatively poorer performance over the twentieth century, protectionist policies meant that the private sector was less competitive and less innovative than otherwise.[126]

Other work by those in the ANU group was also interested in the interaction of government policy and the macroeconomy. In some cases, articles published were directly related to chapters in the main edited works, such as Forster's work on the economic effects of minimum wage legislation, Pope's pieces on immigration policy, and Valentine's article developing an econometric model to test the effect of macroeconomic policy on Depression labour market outcomes.[127] Bambrick extended her PhD thesis on Australian price levels to consider the effect of government intervention into the price mechanism.[128] Cain combined his interest in the history of economic thought with an interest in institutional economic history, assessing the economic rationale behind population and tariff policy in the 1920s.[129]

Engagement with institutional economic history was thus partially due to the activities of the ANU group. It was also due to engagement with professional economists and public policy-makers, with individuals and organisations forming the link between the two sectors. Matthew Butlin and Michael Keating were members of the academic economic history community who then went on to work in the public sphere. Keating's integration

---

[124] Maddock and McLean, ed. *Australian economy*, pp.291 – 316.
[125] Pope focussed on immigration policy and wage centralisation, Valentine on the causes of Recovery from the 1930s Depression, Freebairn on land settlement policy, Anderson on protection, Matthew Butlin on banking regulation, Withers on wage policy and public sector employment.
[126] Maddock and McLean, ed. *Australian economy*, pp.348-9.
[127] Forster's texts were related to his chapter in *Recovery*: C. Forster, 'Indexation and the Commonwealth basic wage, 1907-22', *Australian Economic History Review*, 20, 2, 1980; C. Forster, 'An economic consequence of Mr Justice Higgins'', *Australian Economic History Review*, 25, 2, 1985; C. Forster, 'Unemployment and minimum wages in Australia, 1900–1930', *The Journal of Economic History*, 45, 2, 1985; C. Forster, 'Wages and wage policy: Australia in the Depression, 1929-1934', *Australian Economic History Review*, 30, 1, 1990. Pope's pieces were related to his chapter in *The Australian Economy*: Pope, 'Australian Immigration in the 1920s'; Withers and Pope, 'Immigration and unemployment'. Valentine's piece was related to his chapter in *Recovery:* Valentine, 'Australian labour market'.
[128] S. Bambrick, 'Federal government intervention in the price mechanism 1939-1949', *Australian Economic History Review*, 14, 1, 1974.
[129] Cain, 'Australia in the 1920s'; Cain, 'Population strategy'.

with public policy began early in his career, with former member of the Australian Bureau of Statistics (ABS), Bryan Haig, co-supervising his PhD alongside contemporary ABS member DV Youngman.[130] Policy-makers were also incorporated into the economic history community through co-authorship, with Ronald White and P. M. Boyce co-authoring texts with colleagues who were more directly connected to the academic economic historians.[131] Sub-authorship trends reveal that policy-makers were also incorporated into the conferences for the two main edited works, with Maddock and McLean acknowledging Neil Johnston, and Withers acknowledging Bernie Yates and Norman Fisher.[132] Engagement with this theme was also supported at an organisational level, with the RBA financially supporting the conferences for both *The Australian economy*, and *Recovery*, supporting the publication of Keating's workforce estimates, and forming a partnership with Syd Butlin and Alan Hall to prepare the official banking statistics. In a similar way to the other forms of social interactions, these connections with policy-makers both reflected and reinforced the RSSS economic history group's interest in the historical dimensions of public policy action in the economy.

Outside of Canberra there were isolated instances where scholars focussed on the interaction of the public and private sectors. The comparative framework in Melbourne was concerned with the effect of government policy on long-term development. Fogarty and Duncan addressed economic and political forces in more or less equal measure, with political differences argued to be the main cause of divergence between Australia and Argentina. In Dingle and Merrett's edited collection comparing these two nations, similarly, the interaction of political change and economic development was emphasised in chapters by Duncan and Schedvin.[133] Davison's *Marvellous Melbourne* examined the provision of public services and infrastructure as key to the development of Melbourne's suburbs, and Merrett had some interest in alcohol licensing regulation.[134]

Schedvin examined the link between science, the State, and the economy in a precursor to his history of the CSIRO.[135] Whitwell, influenced by Schedvin (and Schedvin's wife, Bernie),

---

[130] Keating, *Australian workforce*, p.v.
[131] White co-authored with Syd Butlin and Hall; Boyce co-authored with Matthew Butlin.
[132] Maddock and McLean, ed. *Australian economy*, p. ix, 248.
[133] Dingle and Merrett, ed. *Argentina and Australia*.
[134] Davison, *Marvellous Melbourne*; D. T. Merrett, 'The Victorian Licensing Court 1906-1968: A study of role and impact', *Australian Economic History Review*, 19, 2, 1979.
[135] He argued that by 1939, science had become entwined in agricultural production, playing an important role in industrial and defence production during WWII. See Schedvin, 'Australian biology'.

analysed the development of policy advice within the Treasury.[136] He argued that the department slowly shifted from a Keynesian view to a neoclassical one, which was brought about by different training for staff members, the Australian post-WWII experience of full employment, and a global shift in the dominant economic paradigm.[137] Syd Butlin extended his interest in trading banks to focus on the interaction of banks and government policy. Although this work was not finalised before his death in 1977, his notes (published by his daughter Judy Butlin in the *AEHR*) argued that increased central banking sophistication was part of the Labor government's objective of the subordination of the trading banks.[138]

Reviews of major texts were generally in favour of this interpretation, acknowledging that an examination of the role of government was a valuable contribution to the field.[139] Wheelwright was exceptional, criticising *Government and capitalism* for its lack of theory of the capitalist state, and commenting that "the deliberate neglect of Marxist approaches is both unscholarly and incredibly self-limiting".[140] Wheelwright's critique was based on his effort, and those of his associates, in establishing a Marxist framework for Australian political economy. In *Essays on the political economy of Australian capitalism*, edited by Wheelwright and University of Sydney colleague Ken Buckley, contributors outlined Marxist interpretations of a variety of political, social and economic issues.[141] Wheelwright and Buckley then drew on these contributions in a more systematic and historical discussion, *No paradise for workers*, in which they analysed the main themes in the history of the State's role within the economy. Similar to the other institutional interpretations, Wheelwright and Buckley argued that the State had done more than just provide the legal

---

[136] Whitwell interview.
[137] Whitwell, *Treasury line*.
[138] S. J. Butlin, 'Australian central banking, 1945-59', *Australian Economic History Review*, 23, 2, 1983.
[139] See McCarty's discussion of Pincus' and Anderson's chapters in *The Australian Economy* McCarty, 'Review: Maddock and McLean; Gregory and Butlin'; Boehm's review of *Government and Capitalism*: E. Boehm, 'Review: Butlin, Barnard and Pincus, 'Government and Capitalism'', *Australian Economic History Review*, 24, 2, 1984.
[140] E. L. Wheelwright, 'Review: Butlin, Barnard and Pincus, "Government and Capitalism"', *Economic Record*, 59, 167, 1983, p.408.
[141] These volumes are not included in the knowledge network proper here because a) only a small proportion are historical; b) the contributors are for the most part not part of the economic history community (by being a part of EH departments, by contributing to the journal, or collaborating with those who were); and c) most essays are exploratory discussions or commentary rather than original research.

and institutional framework through which producers and consumers operate, but had been an actor in its own right.[142]

Andrew Wells was the other link between the core economic history field and the Marxist political economy approach. Wells completed a PhD in the RSSS economic history department in the 1980s, under the supervision of Butlin, Maddock, and labour historian Eric Fry. The result of this thesis, *Constructing capitalism*, aimed to account for the rise of Australia's capitalist system, rather than assessing the impact of public-private interaction on economic growth. Wells argued that capitalism emerged in Australia through the interaction of British and local forces. Institutional factors such as property rights, the relationship between the private and public sector, and between owners and workers were transplanted from Britain, with local conditions such as the characteristics of convict and free settler populations and Australia's role as an imperial outpost, also shaping the formation of this new society.[143]

While members of the institutional turn were united by an interest in the interaction of the private and public spheres, there were differences in the political ideology of authors. Those who advocated Keynesian economics saw the State as important for smoothing out fluctuations in the business cycle, and for filling in the gaps where markets would otherwise fail. This is seen most readily in Butlin and Gregory's *Recovery* which, in Schedvin's earlier image, assessed the extent to which government macroeconomic management was successful in reducing the timing and extent of the Depression, and the speed of recovery. In *Government and capitalism*, similarly, Butlin and Barnard were both largely in favour of government intervention (provided it was done with consideration of the market). Maddock and McLean's edited work, on the other hand, had a *laissez faire* message, arguing that government policies either constrained private activity or made the private sector inefficient.

However, within the Canberra group there was some inconsistency in political ideology based on the research question at hand. All authors in *Recovery* saw a Keynesian role for macroeconomic management, even though many of the same authors then advocated for smaller government in other works. Pincus, for example, has commented that he was relatively right-wing, and that there were some interpersonal issues on this basis during his co-authorship with Butlin and Barnard.[144] While Butlin and Barnard saw government

---

[142] Buckley and Wheelwright, *No paradise for workers*.
[143] Wells, *Constructing capitalism*.
[144] Pincus interview.

intervention as necessary and progressive, Pincus saw public enterprise as inefficient, monopolistic, and semi-exploitative.[145] This was similar to his assessment in *The Australian economy*,[146] though Pincus then advocated Keynesian macroeconomic management in *Recovery*, arguing that even more government expenditure would have improved recovery in the 1930s.[147] The political economy ideology of Buckley and Wheelwright was also distinctive, with the authors advocating for a State that engaged in heavy redistribution of income and a deliberate agenda of improving the lives of common people. They thus criticised the State for granting monopolies in the economy, and for adopting policies that were in neither the long-run economic interest of the nation, nor in the interest of common people.

Interest in the role of the State in Australia's economic history was thus an important theme for the field, with an engagement of scholars from different geographic communities, and from across the political spectrum. By volume, this interpretive framework was most characteristic of those in Canberra, representing a concerted effort with joint projects and social relationships between key economic historians. Although the qualitative analysis and oral history sources support these groupings, and the effect of location-based joint activities on propagating these themes, the citation analysis only partially reflects classifications based on interpretation. The Canberra cluster of scholars, identified above, adopted a similar perspective on their subject, and generally engaged in the institutional turn. For the comparative framework, the citation analysis reveals very little congruence between those in Melbourne who propagated this theme, despite joint activities and geographic proximity.

9.3. Citations, approach and interpretation

Social network analysis, qualitative examination of texts, and oral history sources suggest the 'spatial placement of ideas', in which local environments structured communication and the intellectual characteristics of authors. The citation analysis supports these social and intellectual groupings to some extent.

---

[145] For Pincus' take, see Butlin*, et al.*, *Government and capitalism*, pp.237-9.
[146] J. J. Pincus, 'Government', in Maddock and McLean, ed., *The Australian economy in the long run*, Melbourne: Cambridge University Press, 1987
[147] J. J. Pincus, 'Australian budgetary policies in the 1930s', in Gregory and Butlin, ed., *Recovery from the Depression*, Cambridge: Cambridge University Press, 1988.

9.3.1. Overall trends and citation similarity

Table 9.5 presents cohesion scores for the citation network for both the 1950s and 1960s, and the 1970s and 1980s. In the latter decades, the expansion of texts and authors was accompanied by an increase in the number of citations per node, with average number of ties increasing from 1.6 to 2.4 between the first and second periods. Along with more citations on average, there was greater diversity, with substantially lower density in the 1970s and 1980s. Examining these trends by decade reveals density decreased between the 1950s and 1960s (from 0.0035 to 0.0019) and between the 1970s and 1980s (0.0018 to 0.0011). Greater diversity of citations in the 1980s may have been due to expanding literature in previous decades. This may have laid a foundation of secondary material for scholars to draw on.[148] It may have also been due to greater internationalisation of the field, with comparative and outward-looking work generally citing both relevant literature at home, and comparable cases overseas.[149]

Table 9.5: Cohesion scores, citation network 1950 - 1991

	1950 - 1970	*1971 - 1991*	*1950s*	*1960s*	*1970s*	*1980s*
Number of authors	40	73	13	35	33	59
Average Degree	1.57	2.43	1.23	1.53	1.64	2.37
Density	0.0015	0.0009	0.0035	0.0019	0.0018	0.0011

Note: Cohesion scores are macro-level descriptions of the network. *Average degree* is the normalised measure of individual degree scores. *Density* indicates the number of ties held by authors, divided by the number of possible ties.

Table 9.6 summarises the citation similarity scores for the two time periods. While the average 'level of connectedness' between authors reveals only modest gains in the 1970s and 1980s, there were more authors who were 'highly correlated' in the latter decades.[150] While only eight pairs of scholars had citation similarity of 70% or above in the 1950s and 1960s, 40 pairs of scholars had the same in the 1971 to 1991 corpus. As a proportion of

[148] This is demonstrated by the *out*-degree scores for texts published in the late 1980s – such as Dyster and Meredith, *Australia in the international economy*. The book was intended as a textbook, surveying the wealth of material that had emerged throughout this period. As such, Table 9.7 indicates that Dyster and Meredith's *out-degree* and *out-bonacich power* scores were the highest in this community.

[149] For example, Duncan and Fogarty, *Australia and Argentina*; Maddock and McLean, ed. *Australian economy*; Nicholas, ed. *Convict workers* were very much embedded in the international literature.

[150] Table 9.6 presents these statistics divided by decade. It shows that there was some difference in average similarity between the 1950s and 1960s, and very little difference in average similarity between the 1970s and 1980s. The former result was likely due to the small amount of published work in the 1950s, and the dominance of orthodox scholars at this time.

the total number of pairs in each network, this means that 1% were highly correlated in the 1950 – 1970 period, and 1.5% of pairs were highly correlated in the 1971 – 1991 period.[151] Examining these trends by decade reveal that there was a relatively large proportion of highly-correlated pairs in the 1970s (2.4%), with this decreasing to 0.88% in the 1980s.

Table 9.6: Citation similarity descriptive statistics, 1950 - 1991

	1950 - 1970	*1971 - 1991*	*1950s*	*1960s*	*1970s*	*1980s*
Number of authors	40	73	13	35	33	59
Average similarity	0.12	0.17	0.20	0.12	0.15	0.17
Median similarity	0.03	0.09	0.04	0.02	0.04	0.09
Number of highly-correlated pairs	8	40	3	3	13	15
Highly-correlated as % of total pairs	1.03	1.52	3.9	0.5	2.4	0.88

Note: Citation similarity determined through *bibliographic coupling*. Similarity between authors indicates common citations (including each other's work).

These trends suggest that the expansion of published work in the 1970s corresponded with a convergence of approach amongst a core group of scholars. This is consistent with the qualitative analysis, which reveals a spike in the proportion of work published in the orthodox tradition in the 1970s.[152] The publication of works from ANU PhD students, and textbooks from key orthodox scholars, contributed to a shared view of the subject at this time. In the 1980s, substantially lower density and a smaller proportion of highly-correlated pairs indicates that there was a divergence in citations. The qualitative analysis supports this as well, with a number of well-developed perspectives co-existing in the 1980s.

Citation similarity was particularly strong between co-authors, and even stronger if the co-authored work was the authors' main contribution to the community. Appendix F shows that Syd Butlin and Schedvin, Duncan and Fogarty, Meredith and Dyster, Shergold and Nicholas, and Butlin, Barnard and Pincus all had high levels of citation similarity in the 1970s and 1980s, with these pairs also adopting a common methodology and focussing on a similar aspect of Australia's economic past. This result is due to the method of data collection. As described in chapter 4, each citation in a co-authored work is attributed to

[151] The 1950 – 1970 corpus had 40 authors and thus 780 possible pairs. The 1971 – 1991 corpus had 73 authors and 2628 possible pairs.
[152] See the proportion of pages in each intellectual tradition in Table 9.3.

each of the authors, under the assumption that each co-author would be aware of the pieces of knowledge included in their text. High citation similarity between co-authors is thus due to the assumptions of the methodology. A greater proportion of highly-correlated pairs in the 1970s and 1980s may have been simply due to greater tendency to co-author at this time.

While this is a quirk of the methodology, the assumption is supported, on the whole, by the analysis of the nature of co-authorship for these scholars.[153] Co-authorship involved authors adhering to a common methodology and a common interpretive framework. In most cases, co-authorship resulted in communication and the diffusion of ideas. Oral history sources have also argued that the process of collaboration led to intellectual change. For instance, Pincus has recalled that his involvement in the ANU's 'Government and Capitalism' project changed Butlin's political leaning.[154] Citation similarity, intellectual similarity, and co-authorship are thus intertwined for this group.

A more unanticipated result would be citation similarity between scholars who adopted a similar approach or interpretation, but never co-authored. For those who adopted the comparative framework, there was very little convergence of citations, except for co-authorship pairs. Despite sharing co-location, joint activities, and a common framework, there was very low levels of citation similarity amongst these scholars.[155] Similarly, for the Melbourne scholars who adopted the analytical approach, adhering to this tradition does not appear to have resulted in a convergence of citations.

For the Canberra group, there is evidence to suggest convergence between approach, interpretation, and citation similarity, independent of co-authorship. The citation analysis reveals a Canberra cluster of authors who all drew on similar secondary texts. Jackson, Barnard, Boot, Keating, Maddock, Martina, McLean, Pincus, Sinclair, Snooks and Withers (in various configurations) had high levels of citation similarity. These authors all wrote within the orthodox school (with the exception of Martina), and a number were also part of the more deductive 'arm' of the orthodox approach.[156] Most engaged in the institutional framework, either through stand-alone pieces or involvement in the Canberra group's main edited works. However, this group is not definitive, with other scholars such as Pope and Forster expressing both the orthodox and deductive traditions, adopting the

---

[153] See the discussion of co-authorship in chapter 8.
[154] Pincus interview.
[155] Of between 40 – 50% at maximum.
[156] Including Jackson, Keating, Maddock, McLean, Withers, Martina, Sinclair.

institutional framework, participating heavily in the ANU social community, and yet they had very low levels of citation similarity with colleagues.

Examining individual pairings thus indicates that the citation analysis imperfectly identifies intellectual trends in this community. While the overall similarity statistics point to the greater diversity of citations, which may have been due to the 'spatial placement of ideas' in the 1980s, individual pairings reveal only some of the ANU group, and none of those in the comparative or analytical traditions. A clear result may have been precluded by the method adopted to determine intellectual trends. Approach, denoting a shared worldview and methodology, is not always the sort of thing one would cite. Interpretations, such as the comparative framework or institutional economic history, have some paradigmatic contributions, but citations may have also been structured by the time period or case study. Citations also hold a multitude of social and intellectual functions, with the Matthew Effect, window dressing, and the reward structure for higher education, affecting the degree to which citations can be considered a pure representation of intellectual trends.[157] Citations do not ensure agreement either, and scholars may have held different intellectual characteristics, but cited each other due to disagreement.[158]

9.3.2. Individual prominence

The citation network also indicates overall prominence in this community. *In-bonacich power* indicates influence based on the number and range of colleagues who cited the particular node.[159] Table 9.1 reveals that Noel Butlin was the highest-cited economic historian in this community. Butlin has the largest *in-bonacich power* score, and his *in-degree* score shows that 55 of a possible 73 authors cited his work. Coghlan, Syd Butlin, Forster, Blainey, Schedvin, Boehm, Hall and Sinclair also had high prominence in this network. This result is unsurprising, and confirms those generally included as the 'standard texts' for Australian economic history.[160] These authors were generally orthodox scholars who focussed on quantitative data and inductive analysis. For Butlin, his prominence may have been derived not simply from intellectual influence, but from a reliance of the orthodox and quantitative-deductive scholars on the primary data he

[157] Cozzens, 'Measure of science'; Kaplan, 'Citation behavior'; Merton, 'Matthew effect'; Phelan, 'Citation analysis'.
[158] See the discussion of citations in chapters 3 and 4.
[159] Hanneman and Riddle, *Social network methods*.
[160] Including those referred to in Schedvin, 'Midas and the merino'; Lloyd, 'Economic history and policy'; Coleman, 'Historiography'; Lloyd, 'Analytical frameworks'.

provided in the 1960s. Coghlan's continued prominence was remarkable considering that, by then, his work was 50 – 70 years old, and his quantitative material had been updated since then. The rapid fall of Shann and Fitzpatrick is more unexpected – from very high citation prominence in the 1950s and 1960s, these scholars were relegated to 54th and 29th position respectively in the latter. These trends indicate the reorientation away from interwar practitioners; the prominence of orthodox authors, and the maintenance of Coghlan's quantitative tradition.

Table 9.7 presents *out-degree* and *out-bonacich power* scores, indicating prominence based on citing other texts. Higher scores suggest that the author was the culmination of published work in this community. Dyster and Meredith's *Australia in the International Economy* performed this function.[161] By virtue of its late publication and its purpose as a textbook, this piece cited 423 individual scholars, with Dyster and Meredith having the highest *out-bonacich power* scores in this community.[162] Other authors who wrote survey texts, or ones that were written at the end of this period also had high *out-bonacich power* scores, including Maddock and McLean, Wells, Sinclair, and Duncan and Fogarty.

Betweenness indicates prominence based on the degree to which the scholar was the path between different areas in the network. It does not distinguish between in- or out-citations, so a high *betweenness* score may indicate someone who cited a wide range of scholars, or were cited *by* a wide range of scholars. Table 9.8 reveals that Butlin was, once again, the most prominent scholar in this field. Butlin's high *betweenness*, combined with his *in-bonacich power and in-degree* scores suggest that his role in the network was primarily as a unifying (or at least widespread) citation for members of this community. However, Butlin also brought together material from other areas, primarily in his texts on Indigenous demography and migration.[163] Blainey's high *betweenness* score was also for incorporating diverse work in his own. In *A land half won*, Blainey cited material from the disciplines of history, geography, architecture, political science, and medicine.

---

[161] Dyster and Meredith, *Australia in the international economy*.
[162] The number of scholars cited in this book calculated from Meredith's *out-degree* score in Table 9.7. Meredith's only other citation was one author in *Convict Workers*.
[163] Butlin, *Our original aggression*; Butlin, 'Aboriginal migration'.

Table 9.7: Centrality scores, out-degree and out-bonacich power, 1971 - 1991

	Out-degree	*Out-bonacich power*	*Out-bonacich power as % of base value*
Dyster, B	430	81335	100
Meredith, D	424	74549	92
McLean, IW	136	60891	75
Wells, A	209	54402	67
Sinclair, WA	162	50330	62
Maddock, R	77	47662	59
Fogarty, J	283	47247	58
Duncan, T	258	47222	58
Merrett, DT	136	43517	54
Withers, GA	131	41103	51
Valentine, TJ	78	39719	49
Pincus, JJ	234	38750	48
Pope, D	170	34892	43
Jackson, RV	57	33996	42
Butlin, NG	376	33865	42
Barnard, A	216	31081	38
Abbott, GJ	57	29663	36
Frost, LE	19	28131	35
Boehm, EA	127	27231	33
Forster, C	51	27156	33
Davison, G	201	26994	33
Statham, P	54	26560	33
Wheelwright, EL	159	26339	32
Buckley, K	159	26339	32
Dingle, AE	70	25925	32
Shergold, P	164	25714	32
Richardson, S	26	25318	31
Anderson, K	60	25146	31
Beever, EA	76	23673	29
Gregory, RG	33	20629	25

Note: *Top 30 individuals, ordered by* out-bonacich power. *Out-degree* indicates how many authors in the sample the actor cited. *Out-bonacich power* indicates prominence based on the author citing a lot of otherwise disconnected authors. As the highest scoring scholar, Dyster's in-bonacich power score is taken as the base value. Average *out-bonacich power* for the top 30 scholars is 5699. For the whole sample, average *out-bonacich power* is 553.

Table 9.8: Citation centrality scores, betweenness 1971 - 1991

	Betweenness	*Betweenness as % of base value*
Butlin, NG	41087	100
Blainey, G	25311	62
Dyster, B	23067	56
Sinclair, WA	20682	50
Fogarty, J	18586	45
McLean, IW	13888	34
Butlin, SJ	12133	30
Schedvin, CB	11800	29
Davison, G	11674	28
Buckley, K	11006	27
Davidson, BR	9942	24
Beever, EA	9073	22
Boehm, EA	8952	22
Forster, C	8243	20
Withers, GA	7449	18
Alford, K	7172	17
Abbott, GJ	6776	16
Pope, D	6571	16
Jackson, RV	6468	16
McCarty, JW	6094	15
Duncan, T	5516	13
Snooks, GD	4547	11
Valentine, TJ	4441	11
Dingle, AE	4408	11
Wheelwright, EL	4325	11
Merrett, DT	4172	10
Whitwell, G	3967	10
Pincus, JJ	3962	10
Barnard, A	3929	10
Keating, M	3608	9

Note: Top 30 scholars ordered by *betweenness*. *Betweenness* is measured as the proportion of shortest paths to other nodes that pass through the particular actor. As the highest-scoring scholar, Butlin's *betweenness* is taken as the base value. Average *betweenness* for the top 30 scholars is 10295. Average for all authors is 5364.

Sinclair and Syd Butlin also maintained high *betweenness* scores. Others, such as Hall, Dunsdorfs, Hughes, and Hartwell, lost their positions by either retiring or moving into other areas from the 1970s.[164] Other prominent authors were those predicted by the historiography literature, including Sinclair, McLean, Syd Butlin, Schedvin, Boehm and

[164] See *betweenness* scores in chapter 7.

Forster.[165] There were some upsets though, with Dyster, Fogarty, Davison, Buckley, Davidson, Beever, and Alford having high *betweenness* scores. Combined with very low levels of citation similarity with other scholars, this reflects the uniqueness of texts by these authors, and their role of connecting the economic history literature to different domains. Davison, Beever and Alford formed part of the bridge to the history discipline, Fogarty and Buckley integrated material from politics and political economy, and Davidson included literature from the agricultural economics field. *Betweenness* scores thus highlight previously neglected scholars for this community, who were important for engaging with a variety of knowledge in their research.

The citation analysis indicates individual prominence the knowledge network, with each metric revealing a different role for authors. Consistency between the qualitative analysis, oral history recollections, and the citation analysis, indicates the reliability of centrality metrics for understanding this community. These metrics emphasise that the most 'important' members of the knowledge network were not simply those who contributed paradigmatic texts, but also those who united the field's literature, or who connected the economic history field to different areas.

9.4. The spatial placement of ideas

In the 1970s and 1980s, a number of distinct but well-developed perspectives formed in the Australian economic history field. This was, in part, due to the continued expansion of staff and departments of economic history, and the development of various joint activities that fostered collaboration and communication between geographically proximate scholars. While Canberra dominated staff, students, and joint activities in the 1950s and 1960s, in the latter decades there was a decentralisation of social ties. This contributed to a shift in the knowledge network from convergence on the orthodox school, to the spatial placement of ideas in the 1970s and 1980s. The Canberra community in the latter decades was characterised by greater social connection to the economics discipline, which reflected and reinforced a statistical, deductive and theoretical approach to the subject. Those at the ANU also had greater connections to policy-makers, encouraging a concern with current economic management and greater emphasis on the relationship between the public and private sectors. In Melbourne, collaborative connections to scholars in a

[165] See discussions in W. Coleman, 'The historiography of Australian economic history', in Ville and Withers, ed., *The Cambridge Economic History of Australia*, Melbourne: Cambridge University Press, 2015; Lloyd, 'Analytical frameworks'.

range of disciplines was associated with a broad approach that incorporated relatively more work from the history discipline. Collaboration and co-ordinated activities between Melbourne-based scholars also led to joint work that adopted the comparative framework of the *Annales* School. Scholars in Sydney were more minor players due to a high proportion of overseas hires and a number of only moderately active researchers. Nevertheless, geographic proximity and social ties between scholars at UNSW resulted in the Convict Workers project, which re-examined Australia's history in terms of indentured labour and human capital.

The main bifurcation in the 1970s and 1980s was thus between the economics-based analysis of those in Canberra, and the relatively broader, history-based analysis of those in Melbourne. These classifications are supported by the oral history evidence and, to some degree, the citation analysis. This development of social enclaves, and the resulting spatial placement of ideas between the two primary Australian economic history communities, essentially divided the ranks of scholars and resources. There was ambivalence from those in the ANU group of a more history-based approach, and criticism of an exclusive relationship with economics from those elsewhere. Although maintaining lines of communication to each parent discipline was healthy for the field, the division between economic historians on either side meant the field did not adequately bridge the space between economics and history. The issues with this division were recognised, with Pincus and Snooks warning the community that "the future of economic history as a separate discipline may well depend upon whether we can present a united front to those who covet the resources we now control".[166]

[166] Pincus and Snooks, 'Editorial reflections', p.5.

10. Neither a discipline nor a colony

This thesis has described the development of Australia's economic history field through the social, professional, and intellectual interactions amongst its main players. The community emerged as one of the key intersections between the humanities and social sciences in the post-WWII expansion of the higher education sector. More scholars, students, research funding and institutional space forged connections between economic historians and contributed to the professional organisation of the group. By examining the interdependence of institutions, social interactions, and ideas, this thesis has highlighted the role of contextual factors in the development of ideas in an intellectual community. It has also examined both individual prominence and collective progress, and has recognised the variety of influences that can occur in a domain of knowledge.

The distinct role of economic history within the academic landscape hopefully captures the imagination of those seeking to understand the way in which knowledge is constructed. As an interdisciplinary field, economic history's development did not simply blend into the general expansion of the social sciences. It was instead the progress of a field that developed as if it was a discipline, and yet was still dependent on the interest of economics and history. Changes in social ties and the higher education environment, tension between factions, and developments in the conceptual paragon of the economic historian meant that the development of this field was a continual process of negotiation. This is the opportunity and challenge of the economic historian, and by extension, the potential dynamics faced by those seeking to develop interdisciplinary knowledge.

This thesis is a timely analysis of the nature and progress of Australian economic history. After expansion and maturation during the post-WWII decades, the 1990s represented a decline of staff and resources for the group. In recent years, there has been a convergence of scholarly trends in economic history and its parent disciplines, contributing to renewed interest and opportunities for scholarship. At this crucial point in economic history's life cycle, it is important to understand the way in which this intellectual community has developed.

While this is an ideal time for self-reflection, it is not an isolated exercise. It is hoped that there will be future reprises of the analysis, incorporating changes to the social, intellectual, and institutional landscape that occurred beyond 1991. Future work will likely incorporate the ICT revolution of the 1990s, and its internationalising effect on scholarship and personnel in Australian economic history. Changes in parent disciplines, including turning away from, and then back towards, economic history, also had bearing

on how the community fared. The introduction of a corporatized university sector, with an appointment and reward system that biases against interdisciplinary work, will likely also feature prominently.

A plethora of sources – both qualitative and quantitative, depicting both formal and informal interactions – have been analysed to present the most comprehensive discussion of the Australian economic history field to date. The primary approach has been to highlight the interdependence of the knowledge and social networks for this community, or the way in which social interactions and communication between scholars affected their perspective of Australian economic history. Social interactions involve those fora – such as a common workplace, academic seminars, and collaborations – that lead to communication and the potential for knowledge diffusion amongst scholars. By integrating the discussion of institutions, time and space, this thesis offers insights closer to the 'lived experience' of operating as an economic historian at this particular time. Ideas are rarely produced in a vacuum, and academic groups are inherently tied to their institutional and social context. While this is generally recognised for intellectual communities, systematic analyses such as this thesis are rare.

By combining the traditional methods of intellectual history with quantitative and visual social network analysis, the project is an example of the growing trend towards the use of digital methods in the humanities. The methodologies are complementary: The social networks provide visual analysis of the potential avenues through which influence could occur, oral history sources provide details about the nature of these social connections and their effect on ideas, citation analysis highlights the most influential scholars and the degree of connectedness of the community through published works, and the qualitative analysis determines the main ideas and methodologies in the field. Although each individual methodology has limitations – the oral history and qualitative analysis of texts are subjective, while the social networks and citation analysis are reductionist – they have been combined to both verify between different sources and minimise the bias of any one technique. Together, these sources illuminate the social and professional ties held by economic historians, and the ways in which these connections may have affected their approach to their subject. This pioneering methodology provides the groundwork for future research that seeks to understand interdisciplinary research and intellectual communities.

10.1. Main conclusions

The Australian economic history community developed through both social and knowledge networks, with universities fostering friendships, research partnerships, feuds, and the development of ideas. The 1950s and 1960s were characterised by the growth of scholars and students, driven by post-WWII higher education expansion and greater emphasis on research in the social sciences. The ANU came to dominate the field at this time, which led to a convergence of scholars on the orthodox approach. In the 1970s and 1980s, the expansion of scholars continued, particularly at newer universities, with decentralisation of social ties away from Canberra. This contributed to several well-developed perspectives, and the broad clustering of ideas by social community. The interaction of institutional developments, social ties and intellectual traditions remained strong, with day-to-day communication structuring the ideas of scholars.

10.1.1. The structure of social interactions

Social interactions between scholars formed largely through an external impulse. Postwar reconstruction focussed on the expansion of Australia's higher education system, with more students, funding for research, and emphasis on the social sciences as professional domains of knowledge. This led to mass recruitment of scholars in existing disciplines, and the development of new fields and specialties. Economic history was a part of this expansion, seen by governments and universities as critical for understanding a prosperous society. Economic historians clustered in Canberra, with generous funding and research-only positions fostering a strong research culture. Recruitment also expanded at the University of Sydney, University of Melbourne, Monash University, and UNSW, with scholars increasingly appointed to separate departments in the subject throughout the 1960s. This expansion of scholars led to seminars, faculty tea rooms, PhD supervision, and separate departments. These activities transformed geographic proximity into communication between scholars. Collaboration followed, with co-authorship, sub-authorship, and contributors to edited works generally involving local scholars. There was a stronger tradition of these activities at the ANU than elsewhere in the 1950s and 1960s, resulting in more dense collaborative relationships between Canberra-based economic historians.

In the 1970s, expansion of Australian higher education continued, with newer universities incorporating economic history units into economics or business degrees. However, demand for economic historians outstripped the domestic supply, and some universities

recruited from overseas. As the centres of Australian economic history expanded, there was a decentralisation of social ties away from Canberra. Seminars, PhD supervision and faculty tea rooms operated in other places, reducing the relative dominance of the ANU group in developing ties between economic historians. Separate departments in the subject emerged at eight universities in the 1960s and 1970s. These were particularly constrained foci for this community, directing interactions inwards and restricting the ability for scholars to form connections elsewhere. Intense, localised interactions in the 1970s and 1980s contributed to an expansion of collaborative ties. While this certainly favoured the Canberra group, there were other joint projects in Melbourne and Sydney. Local interactions thus fostered strong ties between those in the same university and in the same city.

These clusters were mediated, to some extent, by individuals who moved between the geographic centres. These scholars were crucial for the distribution of contacts and ideas between groups. Professional organisations also fostered national co-ordination, with the *AEHR* and the EHSANZ increasing in influence throughout the 1970s and 1980s. These infrastructures developed communication ties between those in different locations, and developed a sense of shared identity for the group. The community thus had both inward- and outward-looking behaviour. The former was stronger in this case, and the community developed a series of social enclaves in which communication and collaboration was concentrated amongst geographically proximate scholars.

10.1.2. The knowledge network

Higher education expansion, recruitment of scholars, and training of PhD students substantially increased the volume of research in economic history throughout the 1950s and 1960s. The ANU dominated the knowledge network at this time, with scholars converging on the orthodox approach. Butlin's work pioneered this tradition, furnishing a quantitative basis for the field, and used this to inductively interpret Australia's economic past. He highlighted the role of urban areas, non-rural industries, and the independence of Australia from world economic events. While the approach emerged independently in some cases, Butlin expressed this perspective convincingly and thoroughly. His work, and the development of social ties at the ANU, provided a platform through which other scholars could be recruited to this intellectual tradition. Meanwhile, the expansion of personnel in Melbourne and Sydney contributed to greater volume of published work adopting alternative approaches. Influence in this intellectual community was determined by the nature of local environments, not simply the number of scholars. The prevalence of

joint activities, close PhD supervision, and collaboration at the ANU meant that the orthodox perspective dominated Australian economic history in the 1950s and 1960s.

Throughout the 1970s and 1980s, the expansion of scholars and development of other social communities led to greater diversity of published work. Potential interpretations expanded to include various theoretical frameworks. There was also a divergence between the orthodox school, the statistical and deductive approach, and work that incorporated methodologies from the broader social sciences and humanities. Both approach and interpretation were determined, to some degree, by social interactions. Those in Canberra tended to highlight the importance of government intervention in the economy, and adopted the deductive and statistical methodology of the economics discipline. In Melbourne, scholars engaged more frequently with the comparative framework of the *Annales* School, whilst also adopting a broad methodology that was better integrated with the work of historians. Although Sydney had amongst the largest number of economic historians, the group lacked cohesiveness. Those at UNSW shared an interest in the outcomes of the convict labour system, while others highlighted the Marxist economic history framework. Similarly to the earlier period, influence in the knowledge network in the 1970s and 1980s emerged through the development of joint activities rather than simply the number of staff.

Thus, while there was a convergence of scholars towards the orthodox approach in the 1950s and 1960s, in the 1970s and 1980s there was greater intellectual fragmentation based on each scholar's local environment. Overall, the 'tide' of work certainly shifted towards the economics discipline, though there remained a strong contingent of published work that integrated material from history and other social sciences. These social and intellectual trends highlight the dependence of economic history on the local environments in which research was produced.

10.2. The Australian economic history community as an IDRF

Existig analyses of economic history highlight its role as either a discipline, a sub-field, or an interdisciplinary group.[1] There is very little agreement about the field's ideal configuration, or its relationship to other domains of knowledge. The detailed analysis of social and intellectual connections for Australian economic history in this thesis offers insights about the development of this scholarly community over time.

[1] See the discussion of this in chapter 2.

10.2.1. Dependence and autonomy

The Australian economic history community resembled some of the stages outlined by Frickel and Gross' theory of scientific/intellectual movements.[2] In the interwar period, economic history was characterised by isolated scholars and small amounts of published research.[3] The field emerged as an intellectual movement in the 1950s and 1960s, with social and professional organisation, the development of strict hierarchies, and consistent lines of communication. Favourable external conditions supported appointments, graduate instruction, and joint projects. The intellectual foundation for this 'movement' was provided by the orthodox school, with Noel Butlin in particular dissatisfied with existing paradigms. His position of leadership at the ANU allowed him to 'recruit' others to this methodology. By the end of the 1960s, the field had paradigmatic contributions, resources and autonomy, institutional space, and greater social organisation.

However, from here, the development of the community was not what the existing models of disciplinary development would anticipate. While the consolidation of social ties in the 1970s and 1980s was consistent with the progress of a new discipline, connections were generally localised. Rather than maintaining a consensus on the established paradigm, the 1970s and 1980s were characterised by intellectual fragmentation and the 'spatial placement of ideas'. Thus, while there was disciplinary-style growth in the 1950s and 1960s, the 1970s and 1980s tended towards the localisation of social trends, and a series of well-developed intellectual traditions.

This long-run development of Australian economic history suggests it was a group inherently concerned with the production and dissemination of interdisciplinary research (IDR). IDR "integrates information, data, techniques, tools, perspectives, concepts and/or theories from two or more disciplines".[4] It exists in the empty spaces (*le vide*) between domains of knowledge. While generally lacking the traditions, infrastructure and deep learning of disciplines, bridging *le vide* is seen as the source of creativity and innovative ideas.[5] The dependence of economic history – even at the height of its expansion – on the support and ideas of larger disciplines demonstrates its inherently interdisciplinary nature.

---

[2] Frickel and Gross, 'Scientific/intellectual movements'. See chapter 3.
[3] Coleman, 'Historiography'. See the discussion of interwar economic history in chapter 5.
[4] National Academies, *Interdisciplinary research*, p.26.
[5] Burt, 'Structural holes', p.350.

Australia's economic history community developed in the context of an expanding post-WWII higher education sector. Economic history was seen as a key part of this expansion, so was granted appointments, funding, and institutional space. Compulsory first year units fuelled appointments, and separate departments emerged through the view that economic history was a valuable part of training in economics. Though appointments and departments gave the field institutional autonomy, it lacked the size and student numbers to sustain itself independently. This became a problem from the 1980s. There with a slowdown of higher education expansion, and a shift in student demand towards professional, occupation-based degrees. Economic history did not fit so well within this environment, and there was a stagnation of appointments and attempts by the economics discipline to claw back its compulsory units. In 1988, the then Labor government's Dawkin's Reforms came into effect, which established a demand-based model for university funding, competitive research grants, and an emphasis on 'strong' research evaluation.[6] While the main effects of the Dawkins reforms were felt in the 1990s, it demonstrates the inherent vulnerability of economic history within Australian higher education.

Ideas in the field have also been dependent on the interests of parent disciplines. Production of knowledge in economic history has been informed by the expertise of larger groups, integrating latest economic theory and historical perspectives into research. Integration with parent disciplines has led to a spectrum of intellectual traditions, with the difference between cliometrics and the analytical approach simply different disciplinary allegiances. The field's prospects have also depended on the perceived 'value' of economic history in these domains. The expansion of the field in the 1950s and 1960s was partially due to the emphasis on long-run business cycle theories within mainstream economics – a discussion economic historians were ideally-placed to contribute to. However, the cost of closer integration with economics was that "general historians kept their distance in puzzled admiration or disinterest".[7] This, combined with the growing interests of historians in culture, drove a wedge between economic history and the history discipline in the 1980s. The development of the field has thus been a continuous process of negotiation between the interests of parent disciplines, and the interdisciplinary space.

[6] Wright and Ville, 'Visualising interdisciplinary agency'.
[7] Schedvin, 'Midas and the merino'.

10.2.2. The interdisciplinary research field

IDR can take a number of different forms. *Specific projects* or *research centres* may bring scholars together to examine a certain issue. However, without continued effort, interdisciplinary connections are likely to disperse after the completion of the project. IDR may also take a more enduring form: the semi-permanent interdisciplinary research field (IDRF).[8] The IDRF involves 'communicating infrastructures' that allow scholars to come together to communicate and transfer ideas.[9] These are the social, institutional and intellectual elements that facilitate the connection between parent disciplines and the interdisciplinary space. They may include university departments, publications, informal networks, scholarly organisations, graduate training and annual conferences.[10] Australian economic history can be thought of as an IDRF. The field has been characterised by social organisation, institutional space, national structures, and recruitment of scholars. It has enjoyed a certain level of independence and endurance, while at the same time has been vulnerable to the support and interest from parent disciplines.

Changes in the nature of the field's infrastructures, and the resulting social and intellectual connections, has affected the group's ability to perform this interdisciplinary role. The community's national infrastructures – the journal, Society and conference – were largely successful in encouraging a diversity of research within economic history. These structures were flexible enough to allow participation from economic historians at different locations, and those from diverse intellectual backgrounds.[11] By increasing contact and the diffusion of knowledge between clusters, these professional organisations mediated the enclaves of social interactions that had developed at each location, and facilitated contact between economic history and its parent disciplines. It was probably no coincidence that those more involved with the journal and the society – those in the Melbourne group – held a broad perspective to the study of economic history.

However, by being a less frequent and less intense form of interaction, the national organisations were not sufficient to overcome the social enclaves that developed at each location. Small, separate departments of economic history were particularly detrimental for the intellectual diversity of each group. There was generally low mobility within these

---

[8] Wright and Ville, 'Visualising interdisciplinary agency'.
[9] Boyce, 'Communicating infrastructures'. The concept of communicating infrastructures is usually associated with the technology of an electronic or physical network that helps information move around.
[10] Wright and Ville, 'Visualising interdisciplinary agency'.
[11] See the discussion of the journal, society and conference in chapter 8.

departments, with some scholars present in the same group, with the same people, for 30 years. Joint activities fostered collaboration and the development of intellectual traditions, but also routed communication inwards. The place of these departments within economics faculties limited the contact of economic historians (largely) to economics. As a result, collaboration and communication in the field generally favoured the economics discipline, though those in Melbourne maintained their connections to the broader humanities and social sciences. This led to greater emphasis on the theory and method of economics over time. While there were other well-developed perspectives, there was very little integration or co-ordination between them. Both contemporary and oral history sources suggest there was conflict between the intellectual traditions, with the economics-based approach criticised for being reductionist, and history-based methodology dismissed as 'soft' social science. Utilising and recognising the value of a spectrum of approaches is necessary for an IDRF to bridge *le vide*.

10.2.3. Interdisciplinarity and policy

The long-run development of Australian economic history highlights its interdisciplinary nature, and the tension between inward- and outward-looking behaviour in the group. Knowledge in economic history integrates material from economics and history, whilst also disseminating innovations back to these larger disciplines. Although disciplinary and interdisciplinary knowledge have been seen as separate, often competing, domains, there is increasing recognition that the two forms of knowledge are complementary.[12] A discipline advances through shared identity, understanding of key concepts, theoretical backgrounds and technical skills. However, these practices route communication inwards. Hierarchies, citation patterns, and academic departments are the discipline's 'mechanisms of control' that foster insularity and silo behaviour. This may exclude potential innovators and lead to informational inertia.[13] On the other hand, the ambiguous yet creative empty spaces in interdisciplinary fields like economic history mean they are seen as the source of

[12] Aram, 'Concepts of interdisciplinarity'; Bonaccorsi, 'Complementarity in science'; Burt, 'Social capital'; Frodeman and Mitcham, 'Interdisciplinarity'; Pfister, 'European integration studies'.
[13] Becher and Trowler, *Academic tribes*; Ding, 'Scientific collaboration'; Katz and Allen, 'NIH syndrome'; Millar and Choi, 'Networks'.

scientific breakthroughs, and as necessary to address the complex problems of the modern world.[14]

Although interdisciplinary research is consistently recommended at an institutional and governmental level, often policies within universities reinforce disciplinary dominance.[15] Undergraduate and postgraduate training, research groupings, reward structures, and funding from research bodies all tend to emphasise the work of disciplines.[16] A 'paradox of interdisciplinarity' has been identified between the rhetoric advocating IDR, and the reality of university structures. This is partially because it is challenging to maintain communication and diffusion of knowledge across disciplinary boundaries, and the diversity of IDR makes it difficult to evaluate consistently.[17] Analysing the development of Australia's economic history field has certainly highlighted the challenges associated with developing and maintaining research groups that are truly interdisciplinary.

Poor understanding of the nature of interdisciplinary fields has recently led to greater interest in their progress over time.[18] However, historical studies remain uncommon, despite recommendation of the value of long-run analysis for understanding interdisciplinarity.[19] The analysis of Australia's economic history field over the post-WWII decades has highlighted the dependence this interdisciplinary field on its social, intellectual, and institutional context. This contributes to our understanding of the development of interdisciplinary knowledge, and may inform higher education policy that seeks to support this type of research.

---

[14] Bonaccorsi, 'Complementarity in science'; Jacobs and Frickel, 'Interdisciplinarity'; T. Kuhn, *The structure of scientific revolutions*, Chicago: University of Chicago Press, 1962; Lyall and Meagher, 'Masterclass in interdisciplinarity'; Page, *The difference*; Rafols, et al., 'Journal rankings'.
[15] D. Rhoten, 'Interdisciplinary research: Trend or transition', *Items and Issues*, 5, 1 - 2, 2004; P. Woelert and V. Millar, 'The 'paradox of interdisciplinarity' in Australian research governance', *Higher Education*, 66, 6, 2013.
[16] Abbott, *Chaos of disciplines*; J. Gläser and G. Laudel, 'Evaluation without evaluators: The impact of funding formulae on Australian university research', in Whitley and Gläser, ed., *The changing governance of the sciences*, Dordrecht: Springer, 2007; Jacobs and Frickel, 'Interdisciplinarity'; Rafols, et al., 'Journal rankings'; E. Shapiro, 'Correcting the bias against interdisciplinary research', *eLife*, 3, 1, 2014; Woelert and Millar, 'Paradox of interdisciplinarity'; D. Gunston, *Between science and politics: Assuring the integrity and productivity of research*, New York: Cambridge University Press, 2000.
[17] L. Grigg, *Cross-disciplinary research: A discussion paper*, Canberra: Australian Research Council, 1999; Klein, *Crossing boundaries*; J. Klein, 'Interdisciplinary needs: The current context', *Library Trends*, 45, 2, 1996.
[18] Gable, et al., *Information systems discipline*; D. J. Hess, 'Bourdieu and science studies: Toward a reflexive sociology', *Minerva*, 49, 3, 2011; Pfister, 'European integration studies'; C. Raasch, V. Lee, S. Spaeth and C. Herstatt, 'The rise and fall of interdisciplinary research: The case of open source innovation', *Research Policy*, 42, 5, 2013; Rafols, et al., 'Journal rankings'.
[19] Jacobs and Frickel, 'Interdisciplinarity'.

10.3. Australian economic history over the long run

It is easy to criticise with the benefit of hindsight. That is, after all, one of the roles of the historian – to assess long run implications of events with the hope of better informing future practice. The role of this thesis is thus two-fold. First, it accounts for the social and intellectual changes of the field, and the way in which the practice of economic history in Australia has changed over time. Second, it provides some practical assistance – to both economic historians and higher education decision-makers – on the long-run dynamics of interdisciplinary fields, and the way in which they develop within their institutional context.

In April 1991, the community's *primus inter pares*[20] passed away in a hospital in Canberra, ravaged by lung cancer that was the result of his beloved tobacco pipe. Around that time, Colin Forster retired and Graeme Snooks was appointed to the Timothy Coghlan Chair at the ANU. Through the culmination of the major joint projects of the late-1980s, the community was also set on a new intellectual trajectory. Meanwhile, storm clouds began to gather, with the government's Dawkins Reforms laying the foundations for a more competitive and vocationally-based higher education sector. Prophetically, the title of Snooks' obituary of Noel Butlin proclaimed that "in my beginning is my end". Undoubtedly, a new phase was just beginning for the Australian economic history community.

[20] First among peers.

Bibliography of secondary texts

Abbott, A. 2001. *Chaos of disciplines* (Chicago: University of Chicago Press).

Aerts, E. and Bosma, U. 2015. The low countries, intellectual borderlands of economic history. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Aitken, H. G. J. 1977. Myth and measurement: The Innis tradition in economic history. *Journal of Canadian Studies*, 12, 5: 96 - 107.

Allen, T. 1977. *Managing the flow of technology* (Cambridge, MA: MIT Press).

Anderson, D. and Eaton, E. 1982. Part 1: Post-war reconstruction and expansion 1940 - 1965. *Higher Education Research and Development*, 1, 1: 8 - 93.

Anderson, K. and O'Neil, B. 2002. *The building of economics at Adelaide, 1901 - 2001* (Adelaide: University of Adelaide Press).

Aral, S., Muchnik, L. and Sundararajan, A. 2009. Distinguishing influence-based contagion from homphily-driven diffusion in social networks. *Proceedings of the National Academy of Sciences of the United States of America*, 106, 51: 21544 - 21549.

Aram, J. D. 2004. Concepts of interdisciplinarity: Configuration of knowledge and action. *Human Relations*, 57, 4: 379 - 412.

Arndt, H. W. 1949. A pioneer of national income estimates. *Economic Journal*, 59, 236: 616 - 625.

Audretsch, D. and Feldman, M. 1996. R&D spillovers and the geography of innovation and production. *American Economic Review*, 86, 1: 630 - 640.

Austin, G. and Broadberry, S. 2014. Introduction: The renaissance of African economic history. *Economic History Review*, 67, 4: 893-906.

Backhouse, R. 1992. How should we approach the history of economic thought, fact fiction or moral tale? *Journal of the History of Economic Thought*, 14, 3: 18 - 35.

Bambrick, S. 1968. *Australian price indexes* (Doctor of Philosophy, Australian National University).

Barnard, A. 1967. Review: Bailey, A hundred years of pastoral banking. *Historical Studies*, 12, 48: 600 - 602.

Barnard, A. 1964. Review: Blainey, The rush that never ended. *Australian Economic History Review*, 4, 1: 85 - 87.

Beattie, V. and Davie, E. 2006. Theoretical studies of the historical development of the accounting discipline: A review and evidence. *Accounting, Business & Financial History*, 16, 1: 1 - 25.

Becher, T. 1987. Disciplinary discourse. *Studies in Higher Education*, 12, 3: 261 - 74.

Becher, T. and Trowler, P. [1989] 2001. *Academic tribes and territories: Intellectual enquiry and the culture of disciplines* (Buckingham: The Society for Research into Higher Education, Open University Press).

Benham, F. 1928. *The prosperity of Australia: An economic analysis* (Londond: PS King).

Berry, D. M., eds. 2012. *Understanding digital humanities* (Hampshire: Palgrave Macmillan).

Bertola, L. and Weber, J. R. 2015. Latin American economic history: Looking backwards for the future. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Bevir, M. 1997. Mind and method in the history of ideas. *History and Theory*, 36, 1: 167 - 189.

Birch, A. 1957. Review: Dunsdorfs, The Australian Wheat-Growing Industry, 1788–1948. *Business History Review*, 31, 03: 337-338.

Blau, P. 1964. *Exchange and power in social life* (New York: Wiley).

Bloor, D. 1976. *Knowledge and social imagery* (Chicago: University of Chicago Press).

Boehm, E. 1967. Review: Bailey, A hundred years of pastoral banking. *The Economic History Review*, 20, 2: 407 - 408.

Boehm, E. 1984. Review: Butlin, Barnard and Pincus, 'Government and Capitalism'. *Australian Economic History Review*, 24, 2:

Boje, P. 2002. Danish economic history — Towards a new millenium. *Scandinavian Economic History Review*, 50, 3: 13-34.

Boldizzoni, F. 2015. The flight of Icarus: Economic history in the Italian mirror. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Boldizzoni, F. 2011. *The poverty of clio: Resurrecting economic history* (Princeton: Princeton University Press).

Boldizzoni, F. and Hudson, P. 2015. *Routledge handbook of global economic history* (London: Routledge).

Bolton, G. 1999. Rediscovering Australia: Hancock and the wool seminar. *Journal of Australian Studies*, 23, 62: 159-170.

Bonaccorsi, A. 2010. New forms of complementarity in science. *Minerva*, 48, 4: 355-387.

Bonacich, P. 1987. Power and centrality: A family of measures. *American Journal of Sociology*, 92, 5: 1170 - 1182.

Boot, H. M. 1988. Review: Maddock and McLean, "The Australian Economy in the Long Run". *Economic Record*, 64, 186: 216.

Borton, H. 1961. Modern Japanese economic historians. In Beasley, W. and Pulleyblank, E., eds. *Historians of China and Japan* (London: Oxford University Press).

Boschma, R. 2005. Proximity and innovation: a critical assessment. *Regional Studies*, 39, 1: 61 - 74.

Boyack, K. W. and Klavans, R. 2010. Co-citation analysis, bibliographic coupling, and direct citation: Which citation approach represents the research front most accurately? *Journal of the American Society for Information Science and Technology*, 61, 12: 2389-2404.

Boyce, G. 2006. Communicating infrastructures. In Boyce, G., Macintyre, S. and Ville, S., eds. *How organisations connect* (Melbourne: Melbourne University Press).

Bozeman, B. and Corely, E. 2004. Scientists' collaboration strategies: Implications for scientific and technical human capital. *Research Policy*, 33, 4: 599 - 616.

Brass, D. 1995. A social network perspective on human resources management. *Research in Personnel and Human Resources Management*, 13, 1: 39 - 79.

Breschi, S. and Lissoni, F. 2001. Knowledge spillovers and local innovation systems: A critical survey. *Industrial and Corporate Change*, 10, 1: 975 - 1005.

Brett, A. 2002. What is intellectual history now? In Cannadine, D., eds. *What is history now?* (London: Palgrave Macmillan).

Buhle, P. 1991. *Marxism in the United States: Remapping the history of the American left* (London: Verso Books).

Burt, R. 1992. *Structural holes* (Cambridge, MA: Harvard University Press).

Burt, R. 2004. Structural holes and good ideas. *American Journal of Sociology*, 110, 2: 349 - 99.

Burt, R. S. 2000. The network structure of social capital. *Research in Organisational Behaviour*, 22, 1: 345 - 423.

Butlin, N. and Troy, P. 1971. *The cost of collisions* (Melbourne: F. W. Cheshire).

Cappell, C. and Guterbock, T. 1992. Visible colleges: The social and conceptual structure of sociological specialities. *American Sociological Review*, 57, 2: 266 - 273.

Carson, C. S. 1975. The history of the United States national income and product accounts: The development of an analytical tool. *Review of Income and Wealth*, 21, 2: 153-181.

Caulfield, S. 2001. The history of gender in the historiography of Latin America. *Hispanic American Historical Review*, 81, 3: 449-490.

Chambers, E. J. and Gordon, D. F. 1966. Primary products and economic growth: An empirical measurement. *The Journal of Political Economy*, 74, 4: 315-332.

Chubin, D. E., Porter, A. L. R., Frederick A. and Connolly, T., eds. 1986. *Interdisciplinary analysis and research: theory and practice of problem-focused research and development* (Mt Airy, MD: Lomond).

Cipolla, C. 1991. *Between history and economics: An introduction to economic history* (Oxford: Basil Blackwell).

Coats, A. 1980. The historical context of the 'new' economic history. *Journal of European Economic History*, 9, 1: 185 - 207.

Coats, A. 2003. The sociology of economics and scientific knowledge, and the history of economic thought. In Samuels, W., Biddle, J. and Davis, J., eds. *A companion to the history of economic thought* (Malden, MA: Blackwell).

Coats, A. W. 1990. Disciplinary self-examination, departments, and research traditions in economic history: The Anglo-American story. *Scandinavian Economic History Review*, 38, 1: 3-18.

Coatsworth, J. H. 2005. Structures, endowments, and institutions in the economic history of Latin America. *Latin American Research Review*, 40, 3: 126 - 144.

Coghlan, T. 1918. *Labour and industry in Australia* (London: Oxford University Press).

Cohen, J. S. 1978. The achievements of economic history: The Marxist school. *The Journal of Economic History*, 38, 1: 29 - 57.

Cole, A. 1968. Economic history in the United States: Formative years of a discipline. *The Journal of Economic History*, 28, 4: 556 - 589.

Coleman, D. 1987. *History and the economic past: An account of the rise and decline of economic history in Britain* (Oxford: Clarendon Press).

Coleman, J. 1990. *Foundations of social theory* (Cambridge: Harvard University Press).

Coleman, J. 1988. Social capital in the creation of human capital. *American Journal of Sociology*, 94, Supplement: S95 - S120.

Coleman, W. 2006. A conversation with Max Corden. *Economic Record*, 82, 259: 379 - 395.

Coleman, W. 2015. The historiography of Australian economic history. In Ville, S. and Withers, G., eds. *Cambridge economic history of Australia* (Melbourne: Cambridge University Press).

Coleman, W. 2009. 'The power of simple theory and important facts': A conversation with Bob Gregory. *Agenda: A Journal of Policy Analysis and Reform*, 16, 2: 61 - 89.

Collins, A., Brown, J. and Newman, S. 1989. Cognitive apprenticeship: teaching the crafts In Resnik, L., eds. *Knowing, learning and instruction* (Hillsdale: Erlbaum).

Collins, R. 1975. *Conflict sociology: Toward an explanatory science* (Chicago: University of Chicago Press).

Collins, R. 1998. *The sociology of philosophies* (Harvard: Harvard University Press).

Coyle, C. L. and Vaughn, H. 2008. Social networking: Communication revolution or evolution? *Bell Labs Technical Journal*, 13, 2: 13-17.

Cozzens, S. 1981. Taking the measure of science: A review of citation theories. *Newsletter of the International Society for the Sociology of knowledge*, 7, 1: 16 - 21.

Cozzens, S. 1989. What do citations count? The rhetoric-first model. *Scientometrics*, 15, 5 - 6: 437 - 447.

Crane, D. 1972. *Invisible colleges: Diffusion of knowledge in scientific communities* (Chicago: University of Chicago Press).

Craver, E. 1986. The emigration of the austrian economists. *History of Political Economy*, 18, 1: 1 - 32.

Cronin, B. 2004. Bowling alone together: Academic writing as distributed cognition. *Journal of the American Society for Information Science and Technology*, 55, 6: 557 - 560.

Cronin, B. and Overfelt, K. 1994. The scholar's courtesy: A survey of acknowledgment behaviour. *Journal of documentation*, 50, 3: 165 - 196.

Cropanzano, R. and Mitchell, M. 2005. Social exchange theory: An interdisciplinary review. *Journal of Management*, 31, 6: 874 - 900.

Curry, M. and Lillis, T. 2010. Academic research networks: Accessing resources for English-medium publishing. *English for Specific Purposes*, 29, 4: 281 - 295.

de Marchi, N. 1970. *John Stuart Mill and the development of English economic thought: A study in the progress of Ricardian orthodoxy* (Doctor of Philosophy, Australian National University).

de Rouvray, C. 2004. 'Old' economic history in the United States: 1939-1954. *Journal of the History of Economic Thought*, 26, 4: 221 - 239.

Deane, P. 1971. Review: Forster ed. Australian Economic Development in the Twentieth Century. *Economic Journal*, 81, 323: 688.

Ding, Y. 2011. Scientific collaboration and endorsement: Network analysis of coauthorship and citation networks. *Journal of Informetrics*, 5, 1: 187 - 203.

Dingle, A. E. 1981. Book Review: Davison, G. 1978. The Rise and Fall of Marvellous Melbourne, Melbourne, Melbourne University Press. *Australian Economic History Review*, 21, 1: 67 - 68.

Doel, R. E. 2003. Oral history of American science. *History of Science*, 41, 349-378.

Dowie, J. A. 1967. As if or not as if: The economic historian as Hamlet. *Australian Economic History Review*, 7, 1: 69 - 85.

Dowie, J. A. 1965. *Studies in New Zealand investment 1871-1900* (Doctor of Philosophy, Australian National University).

Dreyfus, H. and Rabinow, P. 1999. Can there be a science of existential structure and social meaning? In Shusterman, R., eds. *Bourdieu: A critical reader* (Malden, Mass: Blackwell).

Drukker, J. 2006. *The revolution that bit its own tail: How economic history changed our ideas on economic growth* (Amsterdam: Aksant Academic Publishers).

Duijvendak, M. and Peterzon, M. 1995. Relations, friends and relatives: Comparing elite-networks on structural properties in the Dutch provinces Groningen and North-Brabant, 1830-1910. In Boonstra, O., Collenteur, G. and van Elderen, B., eds. *Structures and contingencies in computerized historical research* (Hilversum: Verloren).

Duncan, T. 1981. *Government by audacity: Politics and the Argentine economy, 1885 - 1892* (Doctor of Philosophy, University of Melbourne).

Dunn, J. 1968. The identity of the history of ideas. *Philosophy*, 43, 1: 85 - 104.

Easterbrook, W. and Watkins, M. 1967. *Approaches to Canadian economic history* (Toronto: McClelland and Stewart).

Emerson, R. 1976. Social exchange theory. *Annual Review of Sociology*, 2, 1: 335 - 362.

Emmett, R. 2007. Oral history and the historical reconstruction of Chicago economics. *History of Political Economy*, 39, Suppl 1: 172-192.

Euske, K., Hesford, J. and Malina, M. 2011. A social network analysis of the literature on management control. *Journal of Management Accounting Research*, 23, 1: 259 - 283.

Evans, R. J. 2002. Prologue: What is history? - now. In Cannadine, D., eds. *What is history now?* (Basingstoke: Pagrave Macmillan).

Farrell, M. 2001. *Collaborative circles: Friendship dynamics and creative work* (Chicago: University of Chicago Press).

Feld, S. 1981. The focused organisation of social ties. *American Journal of Sociology*, 86, 5: 1015 - 1035.

Feldman, M. 1999. The new economics of innovation, spillovers and agglomeration: A review of empirical studies. *Economics of Innovation and New Technology*, 8, 1: 5 - 25.

Fertig, C. 2009. Rural society and social networks in nineteenth-century Westphalia: The role of Godparenting in social mobility. *Journal of Interdisciplinary History*, 39, 1: 497-522.

Fertig, G., eds. 2015. *Social networks, political institutions, and rural societies* (Turnhout: Brepols).

Ficker, S. K. 2015. Mexico's economic history: Much more cliometrics and dependency theory. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Fitzpatrick, B. 1941. *The British empire in Australia* (Melbourne: Melbourne University Press).

Fitzpatrick, B. 1939. *British imperialism and Australia* (Sydney: Sydney University Press).

Fitzpatrick, B. 1963. Counter revolution in Australian historiography? *Meanjin Quarterly*, 22, 2: 197 - 213.

Fleischman, R. and Schuele, K. 2009. Co-authorship in accounting history: Advantages and pitfalls. *Accounting, business and financial history*, 19, 3: 287 - 303.

Floud, R. 2001. In at the beginning of British cliometrics. In Hudson, P., eds. *Living economic and social history* (Glasgow: The Economic History Society).

Forster, R. 1978. Achievements of the Annales school. *The Journal of Economic History*, 38, 1: 58-76.

Forsyth, H. 2014. *A history of the modern Australian university* (Sydney: University of New South Wales Press).

Forsyth, H. and Loy-Wilson, S. 2017. Seeking a new materialism in Australian history. *Australian Historical Studies*, 48, 1.

Foster, S. 1991. *Interview with Emeritus Professor Noel George Butlin*

Foster, S. and Varghese, M. 1996. *The making of the Australian National University* (Sydney: Allen and Unwin).

Foucault, M. 1969. *The archaeology of knowledge* (London; New York: Routledge).

Freund, B. 2015. Reflections on the economic history of South Africa. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Frickel, S. and Gross, N. 2005. A general theory of scientific/intellectual movements. *Annual Review of Sociology*, 70, 1: 204 - 32.

Friedkin, N. 1980. A test of structural features of Granovetter's strength of weak ties theory. *Social Networks*, 2, 1: 411 - 422.

Frodeman, R. and Mitcham, C. 2007. New directions in interdisciplinarity: Broad, deep, and critical. *Bulletin of Science, Technology and Society*, 27, 6: 506 - 514.

Fuchs, S. 1993. A sociological theory of scientific change. *Social Forces*, 71, 4: 933 - 953.

Fuchsman, K. 2009. Rethinking integration in interdisciplinary studies. *Issues in Integrative Studies*, 1, 27: 70 - 85.

Gable, G., Gregor, S., Clarke, R., Ridley, G. and Smyth, R. 2008. *The information systems academic discipline in Australia* (Canberra: ANU ePress).

Geison, G. 1981. Scientific change, emerging specialties, and research schools. *History of Science*, 19, 43: 20 - 40.

Gilbert, G. 1977. Referencing as persuasion. *Social Studies of Science*, 7, 1: 113 - 122.

Gläser, J. and Laudel, G. 2007. Evaluation without evaluators: The impact of funding formulae on Australian university research. In Whitley, R. and Gläser, J., eds. *The changing governance of the sciences* (Dordrecht: Springer).

Godden, C. 2013. In praise of Clio: Recent reflections on the study of economic history. *Œconomia*, 3, 4: 645 - 664.

Goldsmith, R. W. 1958. Review: Butlin and de Meel, Public capital formation in Australia; Butlin, Private capital formation in Australia. *The Journal of Economic History*, 18, 01: 112-114.

Gondal, N. 2011. The local and global structure of knowledge production in an emergent research field: An exponential random graph analysis. *Social Networks*, 33, 1: 20 - 30.

Goodwin, C. 2011. The Bloomsbury group as creative community. *History of Political Economy*, 43, 1: 59 - 82.

Gould, R. V. 1991. Multiple networks and mobilization in the Paris Commune 1871. *American Sociological Review*, 56, 716-729.

Gould, R. V. 1993. Trade Cohesion, Class Unity, and Urban Insurrection: Artisanal Activism in the Paris Commune. *American Journal of Sociology*, 98, 4: 721-754.

Gouldner, A. 1960. The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25, 1: 161 - 178.

Granovetter, M. 1973. The strength of weak ties. *American Journal of Sociology*, 78, 6: 1360 - 1380.

Granovetter, M. 1978. Threshold models of collective behaviour. *American Journal of Sociology*, 83, 6: 1420 - 43.

Grele, R. 1996. Directions for oral history in the United States. In Dunaway, D. and Baum, W., eds. *Oral history: An interdisciplinary anthology* (Walnut Creek: Altamira Press).

Grele, R. 1991. *Envelopes of sound: The art of oral history* (Chicago: Precedent).

Grenier, J.-Y. 2015. Economic history in France: A *Sonderweg*? In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Griffin, E. 2010. *A short history of the British industrial revolution* (New York: Palgrave).

Grigg, L. 1999. *Cross-disciplinary research: A discussion paper* (Canberra: Australian Research Council).

Groenewegen, P. and McFarlane, B. 1990. *A history of Australian economic thought* (London: Routledge).

Groenewegen, P. D. 2009. *Educating for business, public service and the social sciences: A history of the Faculty of Economics at the University of Sydney 1920-1999* (Sydney: Sydney University Press).

Gunston, D. 2000. *Between science and politics: Assuring the integrity and productivity of research* (New York: Cambridge University Press).

Hacohen, H. 2000. *Karl Popper - The formative years, 1902-1945* (Cambridge: Cambridge University Press).

Hagstrom, W. 1965. *The scientific community* (New York: Basic Books).

Hall, A. R. 1951. *The London capital market and the flow of capital to Australia 1870-1914* (PhD, London School of Economics).

Han, S. K. 2009. The other ride of Paul Revere: The brockerage role in the making of the American Revolution. *Mobilization*, 14, 143-162.

Hancock, K. 1965. Review: Butlin, Investment; Forster, Industrial Development. *American Economic Review*, 55, 3: 571.

Hands, D. 1997. Conjectures and reputations: The sociology of scientific knowledge and the history of economic thought. *History of Political Economy*, 29, 4: 695 - 739.

Hands, D. 2012. The sociology of scientific knowledge. In Backhouse, R., eds. *New directions in economic methodology* (London: Routledge).

Hands, D. and Mirowski, P. 1996. Harold Hotelling and the neoclassical dream. In Backhouse, R., Hausman, D., Maki, U. and Salanti, A., eds. *Economics and methodology: Crossing boundaries* (London: Macmillan).

Hanneman, R. and Riddle, M. 2005. *Introduction to social network methods* (Riverside CA: University of California).

Hansen, M. 1999. The search-transfer problem: The role of weak ties in sharing knowledge across organisational subunits. *Administrative Science Quarterly*, 44, 1: 82 - 111.

Harary, F., Norman, R. and Cartwright, D. 1965. *Structural models* (New York: Wiley).

Hardin, R. 1982. *Collective action* (Baltimore: John Hopkins University Press).

Harte, N., eds. 1971. *The study of economic history* (London: Frank Cass).

Harvard University. 2015. *Economists in Cambridge*, retrieved 4th August 2015, from http://www.fas.harvard.edu/~histecon/visualizing/graphing/economists.html.

Hasselberg, Y. 2015. Manufacturing the historic compromise: Swedish economic history and the triumph of the Swedish model. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Haythornthwaite, C. 2005. Social networks and Internet connectivity effects. *Information, Communication & Society*, 8, 2: 125-147.

Heaton, H. 1922. *Modern economic history with special reference to Australia* (Adelaide: WEA South Australia).

Hedstrom, P. 1994. Contagious collectives: On the spatial diffusion of Swedish trade unions. *American Journal of Sociology*, 99, 5: 1157 - 1179.

Heider, F. 1946. Attitiudes and cognitive organisation. *Journal of Psychology*, 21, 1: 107 - 12.

Heider, F. 1958. *The psychology of interpersonal relations* (New York: Wiley).

Henriksen, D. 2016. The rise in co-authorship in the social sciences, 1980–2013. *Scientometrics*, 107, 2: 455 - 476.

Hess, D. J. 2011. Bourdieu and science studies: Toward a reflexive sociology. *Minerva*, 49, 3: 333-348.

Hesse, J.-O. 2015. The legacy of German economic history: Archetypes and global diffusion. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Hilton, R., eds. 1976. *The transition from feudalism to capitalism* (London: New Left Books).

Hobsbawm, E. J. 1971. From social history to the history of society. *Daedalus*, 100, 1: 20-45.

Hollinger, D. 1979. Historians and the discourse of intellectuals. In Higham, J. and Conkin, P. K., eds. *New directions in American intellectual history* (Baltimore: Johns Hopkins University Press).

Hollingshead, A. 1998. Retrieval processes in transactive memory systems. *Journal of personality and social psychology*, 74, 1: 659 - 671.

Hollingshead, A., Fulk, J. and Monge, P. 2002. Fostering intranet knowledge-sharing: An integration of transactive memory and public goods approaches. In Hinds, P. and Kiesler, S., eds. *Distributed work* (MA: MIT Press).

Holton, S. 1987. T.A. Coghlan's labour and industry in Australia: An enigma in Australian historiography. *Historical Studies*, 22, 88: 336 - 351.

Homans, G. 1950. *The human group* (New York: Harcourt, Brace & World).

Hopkins, A. G. 2009. The new economic history of Africa. *The Journal of African History*, 50, 02: 155-177.

Howells, J. 2002. Tacit knowledge, innovation and economic geography. *Urban Studies*, 39, 1: 871 - 884.

Hsueh, C. and Wang, C. 2009. The use of social network analysis in knowledge diffusion research from patent data. *2009 International Conference on Advances in Social Network Analysis and Mining*, 2009.

Hu, C. and Racherla, P. 2008. Visual representation of knowledge networks: A social network analysis of hospitality research domain. *International Journal of Hospitality Management*, 27, 1: 302 - 312.

Hudson, P. 2015. Economic history in Britain: The 'first industrial nation'. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Hudson, P., eds. 2001. *Living economic and social history* (Glasgow: Economic History Society).

Hugo, G. 2005. Demographic trends in Australia's academic workforce. *Journal of Higher Education Policy and Management*, 27, 3: 327-343.

Hussler, C. and Ronde, P. 2007. The impact of cognitive communities on the diffusion of academic knowledge: Evidence from the networks of inventors of a French university. *Research Policy*, 36, 2: 288 - 302.

Hutchinson, D. 1985. Review: Alford, "Production or reproduction?". *Australian Economic History Review*, 26, 1:

Iriarte-Goni, I. 2015. Spanish economic history: Lights and shadows in a process of convergence. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Jacobs, J. and Frickel, S. 2009. Interdisciplinarity: A critical assessment. *Annual Review of Sociology*, 35, 1: 43 - 65.

Jaffe, A., Trajtenberg, M. and Henderson, R. 1993. Geographic localization of knowledge spillovers as evidenced by patient citations. *The Quarterly Journal of Economics*, 108, 3: 577 - 98.

James, D. 2000. *Doña María's story: life history, memory, and political identity* (Durham: Duke University Press).

Jay, M. 1973. *The dialectical imagination: A history of the Frankfurt School and the Institute of Social Research, 1923-1950* (London: Heinemann).

Jerven, M. 2011. A clash of disciplines? Economists and historians approaching the African past. *Economic History of Developing Regions*, 26, 2: 111-124.

Jetson, T. 2010. Economic history – the neglected relative of Australian historiography? *Tasmanian Historical Studies*, 15, 1: 7 - 37.

Johnston, R. 1998. *The changing nature and forms of knowledge: A review* (Canberra: Australian Government Publishing Service).

Jones, G., van Leeuwen, M. and Broadberry, S. 2012. The future of economic, business and social history. *Scandinavian Economic History Review*, 60, 3: 225 - 253.

Judge, T. C., DM, Colbert, A. and Rynes, S. 2007. What causes a management article to be cited: Article, author, or journal? *Academy of Management Journal*, 50, 3: 491 - 506.

Kaplan, N. 1965. The norms of citation behavior: Prolegomena to the footnote. *American Documentation*, 16, 3: 179 - 184.

Katz, J. 1993. *Bibliometric assessment of intranational university-university collaboration* (PhD Thesis, University of Sussex).

Katz, J. 1994. Geographical proximity and scientific collaboration. *Scientometrics*, 31, 1: 31 - 43.

Katz, J. and Martin, B. 1997. What is research collaboration. *Research Policy*, 26, 1: 1 - 18.

Katz, N., Lazer, D., Arrow, H. and Contractor, N. 2004. Network theory and small groups. *Small group research*, 35, 3: 307 - 332.

Katz, R. and Allen, T. 1982. Investigating the Not Invented Here (NIH) syndrome. *R&D Management*, 12, 1: 7 - 19.

Keating, M. 1967. *The growth and composition of the Australian work force, 1910 - 11 to 1960 - 61* (Doctor of Philosophy, Australian National University).

Kendrick, J. W. 1970. The historical development of national-income accounts. *History of Political Economy*, 2, 2: 284-315.

Kenway, J., Bullen, E. and Robb, S. 2004. The knowledge economy, the techno-preneur and the problematic future of the university. *Policy Futures in Education*, 2, 2: 330 - 349.

Kenwood, A. and Lougheed, A. 1997. *Economics at the University of Queensland, 1912 - 1997* (Brisbane: University of Queensland).

Kerridge, E. 2001. Looking to the future. In Hudson, P., eds. *Living economic and social history* (Glasgow: The Economic History Society).

King, J. E. 2016. A conversation with Michael Schneider. *History of Economics Review*, 65, 1: 49 - 63.

Klein, J. 1996. *Crossing boundaries: Knowledge, disciplinarities, and interdisciplinarities* (Charlottsville: The University of Virginia Press).

Klein, J. 1990. *Interdisciplinarity: History theory, and practice* (Detroit: Wayne State University).

Klein, J. 1996. Interdisciplinary needs: The current context. *Library Trends*, 45, 2: 134 - 154.

Kockelmans, J. 1979. *Interdisciplinarity and higher education* (University Park: Pennsylvania State University Press).

Koot, G. M. 1980. English historical economics and the emergence of economic history in England. *History of Political Economy*, 12, 2: 174.

Koot, G. M. 1987. *English historical economics, 1870 – 1926: The rise of economic history and neomercantilism* (Cambridge, MA: Cambridge University Press).

Koot, G. M. 1993. Historians and economists: The study of economic history in Britain ca. 1920–1950. *History of Political Economy*, 25, 4: 641-675.

Kostoff, R. 1998. The use and misuse of citation analysis in research evaluation. *Scientometrics*, 43, 1: 27 - 43.

Krackhardt, D. and Kilduff, M. 1990. Friendship patterns and culture: The control of organizational diversity. *American Anthropologist*, 92, 1: 142 - 154.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T. and Scherlis, W. 1998. Internet paradox: A social technology that reduces social involvement and psychological well-being? *American psychologist*, 53, 9: 1017.

Krischel, M. and Fangerau, H. 2013. Historical network analysis can be used to construct a social network of 19th century evolutionists. In Fangerau, H., Geisler, H., Halling, T. and Martin, W., eds. *Classification and evolution in biology, linguistics and the history of science* (Stuttgart: Franz Steiner Verlag).

Kuhn, T. [1962] 1970. *The structure of scientific revolutions* (Chicago: University of Chicago Press).

Kuznesof, E. and Oppenheimer, R. 1985. The family and society in nineteenth-century Latin America: An historiographical introduction. *Journal of family history*, 10, 3: 215-234.

Laband, D. and Tollison, R. 2000. Intellectual collaboration. *Journal of Political Economy*, 108, 3: 632 - 662.

Lakatos, I., Worrall, J. and Currie, G. 1980. *The methodology of scientific research programmes: Volume 1: Philosophical papers* (Cambridge: Cambridge University Press).

Lamoreaux, N. 2015. Beyond the old and the new: Economic history in the United States. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Laudel, G. 2002. What do we measure by co-authosrhips? *Research Evaluation*, 11, 1: 3 - 15.

Lazarsfeld, P. and Merton, R. 1954. Friendship as a social process: a substantive and methodological analysis. In Berger, M., eds. *Freedom and control in modern society* (New York: Van Nostrand).

Leavy, P. 2011. *Oral history: Understanding qualitative research* (Oxford: Oxford University Press).

Lee, A. 2008. How are doctoral students supervised? Concepts of doctoral research supervision. *Studies in Higher Education*, 33, 3: 267 - 281.

Levine, J. 2005. Intellectual history as history. *Journal of the History of Ideas*, 66, 2: 189 - 200.

Leydesdorff, L. and Amsterdamska, O. 1990. Dimensions of citation analysis. *Science, Technology, and Human Values*, 15, 3: 305 - 35.

Licoppe, C. and Smoreda, Z. 2005. Are social networks technologically embedded?: How networks are changing today with changes in communication technology. *Social Networks*, 27, 4: 317-335.

Lievrouw, L. 1990. Reconciling structure and process in the study of scholarly communication. In Borgman, C., eds. *Scholarly communication and bibliometrics* (Newbury Park: Sage).

Lievrouw, L., Rogers, E., Lowe, C. and Nadel, E. 1987. Triangulation as research strategy for identifying invisible colleges among biomedical scientists. *Social Networks*, 9, 3: 217 - 248.

Lloyd, C. 2015. Analytical frameworks of Australia's economic history. In Ville, S. and Withers, G., eds. *Cambridge economic history of Australia* (Melbourne: Cambridge University Press).

Lloyd, C. 1997. Can economic history be the core of social science? Why the discipline must open and integrate to ensure the survival of long-run economic analysis. *Australian Economic History Review*, 37, 3: 256 - 266.

Lloyd, C. 1995. Economic history and policy: Historiography of Australian traditions. *Australian Journal of Politics and History*, 41, 3: 61 - 79.

Louzek, M. 2011. The battle of methods in economics: The classical Methodenstreit - Menger vs. Schmoller. *American Journal of Economics and Sociology*, 70, 2: 439 - 463.

Lovejoy, A. 1936. *The great chain of being: A study of the history of an idea* (New York: Harper and Row).

Lyall, C. and Meagher, L. 2012. A masterclass in interdisciplinarity: Research into practice in training the next generation of interdisciplinary researchers. *Futures*, 44, 6: 608 - 617.

Lydall, H. 1963. N.G. Butlin's anatomy of Australian economic growth. *Business Archives and History*, 3, 2: 204 - 210.

Lynch. 1985. *Art and artifact in laboratory science: A study of shop work and shop talk in a research laboratory* (London: Routledge).

Lyons, J., Cain, L. and Williamson, S., eds. 2008. *Reflections on the cliometrics revolution: Conversations with economic historians* (New York: Routledge).

Macarthy, P. 1967. *The Harvester Judgment - An historical assessment* (Doctor of Philosophy, Australian National University).

Macintyre, S. 2010. *The poor relation* (Melbourne: Melbourne University Press).

Macintyre, S. and Clark, A. 2004. *The history wars* (Melbourne: Melbourne University Publishing).

MacRoberts, M. and MacRoberts, B. 1996. Problems of citation analysis. *Scientometrics*, 36, 3: 435 - 444.

Maddock, R. 1985. Review: Duncan and Fogarty, "Australia and Argentina". *Economic Record*, 61, 174: 684.

Mainous III, A. G., Bowman, M. A. and Zoller, J. S. 2002. The importance of interpersonal relationship factors in decisions regarding authorship. *Family Medicine*, 34, 6: 462-7.

Mannheim, K. 1922. *Structures of thinking* (London: Routledge and Kegan Paul).

Marginson, S. 2000. *Monash: remaking the university* (St Leonards: Allen and Unwin).

Martinez-Alier, J. 1991. Ecology and the poor: A neglected dimension of Latin American history. *Journal of Latin American Studies*, 23, 03: 621-639.

Mata, T. and Lee, F. S. 2007. The role of oral history in the historiography of heterodox economics. *History of Political Economy*, 39, 154.

Mathias, P. 1971. Living with the neighbours: The role of economic history. In Harte, N., eds. *The study of economic history* (London: Frank Cass).

Mathias, P. 2010. On economic history: The progress of a discipline living with its neighbours. In Harlaftis, G., Karapidakis, N., Sbonias, K. and Vaiopoulos, V., eds. *The new ways of history* (London: IB Tauris).

Mathias, P. 2001. Still living with the neighbours. In Hudson, P., eds. *Living economic and social history* (Glasgow: The Economic History Society).

Maxwell, P. 2003. The rise and fall (?) of economics in Australian universities. *Economic Papers: A journal of applied economics and policy*, 22, 1: 79-92.

McCalla, D. 2015. Making a country (and an economy): Economic history in Canada. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

McCarty, J. 1960. *British investment in overseas mining, 1880-1914* (Doctor of Philosophy, University of Cambridge).

McCarty, J. W. 1980. Melbourne, Ballarat, Sydney, Perth: The new city histories. *Historical Studies*, 19, 74: 1-15.

McCarty, J. W. 1986. Review: Duncan and Fogarty, "Australia and Argentina". *Australian Economic History Review*, 26, 2: 195 - 196.

McCarty, J. W. 1990. Review: Maddock and McLean, "Australian Economy in the Long Run" and Gregory and Butlin, "Recovery from Depression". *Australian Historical Studies*, 24, 95: 295-320.

McCloskey, D. 1976. Does the past have useful economics? *Journal of Economic Literature*, 14, 2: 434 - 461.

McLaughlin, N. 2008. Collaborative circles and their discontents: Revisiting conflict and creativity in Frankfurt School critical theory. *Sociologica*, 2, 2: 0-0.

McLean, I. W. 1971. *Rural output, inputs and mechanisation in Victoria 1870 - 1910* (Doctor of Philosophy, Australian National University).

McPherson, M., Smith-Lovin, L. and Cook, J. 2001. Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 1: 415 - 444.

McWilliams, A., Lockett, A., Katz, J. and Van Fleet, D. 2009. Who is talking to whom? The network of intellectual influence in management research. *Journal of Applied Management and Entrepreneurship*, 14, 2: 61 - 81.

Mehl, M. 1998. *Historiography and the state in nineteenth-century Japan* (London: Macmillan).

Menand, L. 2001. *The metaphysical club: A story of ideas in America* (New York: Farrar, Straus and Giroux).

Meredith, D. and Oxley, D. 2015. The rise and fall of Australian economic history. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Merton, R. 1968. The Matthew effect in science. *Science*, 159, 3810: 56 - 63.

Milgram, S. 1967. The small-world problem. *Psychology Today*, 1, 5: 62 - 67.

Millar, C. and Choi, C. 2009. Networks, social norms and knowledge sub-networks. *Journal of Business Ethics*, 90, 1: 565 - 574.

Mirowski, P. 1989. *More heat than light* (Cambridge: Cambridge University Press).

Mitch, D. 2011. Economic history in departments of economics: The case of the University of Chicago, 1892 to the present. *Social Science History* 35, 2: 237 - 271.

Monk, R. 1990. *Ludwig Wittgenstein: The Duty of Genius* (New York: Maxwell Macmillan International).

Montanari, A. and Saberi, A. 2010. The spread of innovations in social networks. *Proceedings of the National Academy of Sciences of the United States of America*, 107, 47: 20196 - 20201.

Moody, J. 2004. The structure of a social science collaboration network: Disciplinary cohesion from 1963 to 1999. *American Sociological Review*, 69, 2: 213 - 238.

Moretti, E. 1999. Social networks and migrations: Italy 1876-1932. *International Migration Review*, 33 (3), 640-658.

Morgan, S. and Shanahan, M. 2010. The supply of economic history in Australasia: The *Australian Economic History Review* at 50. *Australian Economic History Review*, 50, 3: 217 - 239.

Morrell, J. 1972. The chemist breeders: The research schools of Liebig and Thomas Thomson. *Ambix*, 19, 1: 1 - 46.

Morrissey, C. 1970. On oral history interviewing. In Dexter, L., eds. *Elite and specialised interviewing* (Evanston, IL: Northwestern University Press).

Morrissey, C. T. 2000. Oral history, memory, and the hallways of academe: Tenure decisions and other job skirmishes. *The Oral History Review*, 99-116.

Mulkay, M. 1975. Three models of scientific development. *The Sociological Review*, 23, 3: 509 - 526.

Mulkay, M., Gilbert, G. and Woolgar, S. 1975. Problem areas and research networks in science. *Sociology*, 9, 1: 187 - 203.

Mullins, N. 1973. *Theory and theory groups in contemporary american sociology* (New York: Harper & Row).

Murray, K., Ross, I., Morris, C., Reid, A. and Richards, J. 1957. *Report of the Committee on Australian Universities, September 1957* (Canberra: Commonwealth Government).

Nahapiet, J. and Ghoshal, S. 1998. Social capital, intellectual capital, and the organisational advantage. *The Academy of Management Review*, 23, 2: 242 - 266.

National Academies. 2005. *Facilitating interdisciplinary research* (Washington DC: The National Academies Press).

NDSU Department of Mathematics. 2017. *Mathematics genealogy project*, retrieved 20th February 2017, from https://genealogy.math.ndsu.nodak.edu/.

Nerur, S. P., Rasheed, A. A. and Natarajan, V. 2008. The intellectual structure of the strategic management field: An author co-citation analysis. *Strategic Management Journal*, 29, 3: 319-336.

Neurotree.org. 2017. *The academic family tree*, retrieved 3rd January 2017, from https://academictree.org/.

Newcomb, T. 1961. *The acquaintance process* (New York: Holt, Rinehart & Winston).

Newman, M. 2004. Coauthorship networks and patterns of scientific collaboration. *Proceedings of the National Academy of Sciences of the United States of America*, 101, S1: 5200 - 5205.

Newman, M. 2010. *Networks: An introduction* (Oxford: Oxford University Press).

Nicholas, S. 1997. The future of economic history in Australia. *Australian Economic History Review*, 37, 3: 267-274.

Nieves, J. and Osorio, J. 2013. The role of social networks in knowledge creation. *Knowledge Management Research and Practice*, 11, 1: 62 - 77.

Oberlin, K. C. and Gieryn, T. F. 2015. Place and culture-making: Geographic clumping in the emergence of artistic schools. *Poetics*,

Olokoju, A. 2015. Beyond a footnote: Indigenous scholars and the writing of West African economic history. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Olson, M. J. 1965. *The logic of collective action* (Cambridge, MA: Harvard University Press).

Oxley, D. 1991. *Convict maids* (Doctor of Philosophy, University of New South Wales).

Page, S. 2007. *The difference: How the power of diversity creates better groups, firms, schools, and societies* (Princeton: Princeton University Press).

Parthasarathi, P. 2015. The history of Indian economic history. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Paxton, T. J. 1996. Modes of interaction between disciplines. *The Journal of Education*, 45, 2: 79 - 96.

Pearson, M. and Brew, A. 2002. Research training and supervision development. *Studies in Higher Education*, 27, 2: 135 - 150.

Perks, R. and Thomson, A. [1998] 2006. *The oral history reader* (New York: Routledge).

Perreau-Saussine, E. 2007. Quentin Skinner in context. *The Review of Politics*, 69, 1: 106 - 122.

Perren, R. 2001. A personal view. In Hudson, P., eds. *Living economic and social history* (Glasgow: Economic History Society).

Peters, H. and van Raan, A. 1991. Structuring scientific activities by co-author analysis: An exercise on a university faculty level. *Scientometrics*, 20, 1: 235 - 255.

Pfister, T. 2015. Coproducing European integration studies: Infrastructures and epistemic movements in an interdisciplinary field. *Minerva*, 53, 3: 235 - 255.

Phelan, T. 1999. A compendium of issues for citation analysis. *Scientometrics*, 45, 1: 117 - 136.

Phelan, T. 1999. A compendium of issues for citation analysis. *Scientometrics*, 45, 1: 117 - 136.

Pickering, A. 1992. From science as knowledge to science as practice. In Pickering, A., eds. *Science as practice and culture* (Chicago: University of Chicago Press).

Pieters, R. and Baumgartner, H. 2002. Who talks to whom: Intra- and interdisciplinary communication of economics journals. *Journal of Economic Literature*, 40, 2: 483 - 509.

Pincus, J. and Snooks, G. 1988. The past and future role of the Australian economic history review: Editorial reflections and aspirations. *Australian Economic History Review*, 28, 2: 3 - 7.

Pocock, J. 2004. Quentin Skinner. The history of politics and the politics of history. *Common Knowledge*, 10, 3: 532 - 550.

Pocock, J. 1981. The reconstruction of discourse: Towards the historiography of political thought. *MLN*, 96, 5: 959 - 980.

Podolny, J. and Baron, J. 1997. Resources and relationships: Social networks and mobility in the workplace. *American Sociological Review*, 62, 5: 673 - 693.

Polanyi, M. 1958. *Personal knowledge: Towards a post-critical philosophy* (Chicago: University of Chicago Press).

Ponds, R., van Oort, F. and Frenken, K. 2007. The geographical and institutional proximity of research collaboration. *Papers in Regional Science*, 86, 3: 423 - 43.

Pope, D. 1976. *The peopling of Australia: United Kingdom immigration from Federation to the Great Depression* (Doctor of Philosophy, Australian National University).

Portelli, A. 2006. What makes oral history different. In Perks, R. and Thomson, A., eds. *The oral history reader* (New York: Routledge).

Prest, W., eds. 2014. *Pasts present: History at Australia's third university* (Kent Town: Wakefield Press).

Price, D. d. S. 1963. *Little science, big science* (New York: Columbia University Press).

Price, D. d. S. 1986. *Little Science, Big Science (and beyond)* (New York: Columbia University Press).

Raasch, C., Lee, V., Spaeth, S. and Herstatt, C. 2013. The rise and fall of interdisciplinary research: The case of open source innovation. *Research Policy*, 42, 5: 1138 - 1151.

Rafols, I., Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A. 2012. How journal rankings can suppress interdisciplinary research: A comparison between innovation studies and business and management. *Research Policy*, 41, 7: 1262 - 1282.

Rawlings, C., McFarland, D., Dahlander, L. and Wang, D. 2015. Streams of thought: Knowledge flows and intellectual cohesion in a multidisciplinary era. *Social Forces*, 93, 4: 1687 - 1722.

Reagans, R. and McEvily, B. 2003. Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48 2: 240 - 267.

Reeves, W. P. 1902. *State experiments in Australia & New Zealand* (London: G. Richards).

Rheingold, H. 2000. *The virtual community: Homesteading on the electronic frontier* (Cambridge: MIT press).

Rhoten, D. 2004. Interdisciplinary research: Trend or transition. *Items and Issues*, 5, 1 - 2: 6 - 11.

Rocke, A. 1993. Group research in German chemistry: Kolbe's Marburg and Leipzig Institutes. *Osiris*, 8, 1: 52 - 79.

Röhrs, H. 1987. The classical idea of the university. In Röhrs, H. and Hess, G., eds. *Tradition and reform of the University under an international perspective* (Verlag: Peter Lang).

Rojas, A. 2007. Cliometrics: A market account of a scientific community (1957 - 2006). *Lecturas de Economia Universidad de Antioquia-Lecturas de Economia*, 66, 1: 47 - 82.

Rost, K. 2011. The strength of strong ties in the creation of innovation. *Research Policy*, 40, 4: 588 - 604.

Rostow, W. 1957. The interrelation of theory and economic history. *Journal of Economic History*, 17, 4: 509-23.

Roy, T. 2014. The rise and fall of Indian economic history 1920–2013. *Economic History of Developing Regions*, 29, 1: 15-41.

Saito, O. 2015. A very brief history of Japan's economic and social history research. *XVIIth World Economic History Congress*, 3 - 7 August, 2015.

Salancik, G. 1986. An index of subgroup influence in dependency networks. *Adminstrative Science Quarterly*, 31, 1: 194 - 211.

Samuelson, P. 1954. The pure theory of public expenditure. *Review of Economics and Statistics*, 36, 1: 387 - 389.

Schabas, M. 1992. Breaking away: History of economics as history of science. *History of Political Economy*, 24, 1: 187 - 203.

Schedvin, C. 1989. Australian economic history. *Economic Record*, 65, 190: 287 - 290.

Schedvin, C. 1967. Economic history in Australian universities, 1961-1966. *Australian Economic History Review*, 7, 1: 1 - 18.

Schedvin, C. 1979. Midas and the merino: A perspective on Australian economic historiography. *The Economic History Review*, 32, 3: 542 - 556.

Schedvin, C. B. 1972. Review: Forster ed. Australian economic development. *Economic Record*, 48, 121: 131.

Schedvin, C. B. 1993. Shorter notices. *English Historical Review*, 108, 426: 255.

Scott, J. 2012. *What is social network analysis* (London: Bloomsbury Academic).

Scott, J. and Bromley, R. 2013. *Envisioning sociology: Victor Branford, Patrick Geddes, and the quest for social reconstruction* SUNY Press).

Serle, G. 1963. God-professors and their juniors. *Vestes*, 6, 1: 11 - 17.

Shakeosphere. 2015. *Shakeosphere: Mapping early modern social networks*, retrieved 4th August 2015, from http://shakeosphere.lib.uiowa.edu/.

Shann, E. 1930. *An economic history of Australia* (Melbourne: Cambridge University Press).

Shapiro, E. 2014. Correcting the bias against interdisciplinary research. *eLife*, 3, 1: 1 - 3.

Sharplin, A. and Mabry, R. 1985. The relative importance of journals used in management research: An alternative ranking. *Human Relations*, 38, 1: 139 - 149.

Shen, S. X. 2015. Negotiating authorship in Chinese universities: How organizations shape cycles of credit in science. *Science, Technology & Human Values*, 0162243915622265.

Sheridan, T. 1967. *A history of the Amalgamated Engineering Union: Australian section, 1920 - 1954* (Doctor of Philosophy, Australian National University).

Shinn, T. 1982. Scientific disciplines and organisational specificity. In Elias, N., Martins, H. and Whitley, R., eds. *Scientific establishments and hierarchies* (Dordrecht: Riedel).

Shklovski, I., Kiesler, S. and Kraut, R. 2006. The internet and social interaction. *Computers, phones, and the Internet*, 251-264.

Siler, K. 2013. Citation choice and innovation in science studies. *Scientometrics*, 95, 1: 385 - 415.

Simkin, C. 1954. Review: Butlin, Foundations of the Australian monetary system. *Historical Studies*, 6, 22: 226 - 228.

Simkin, C. G. F. 1965. Review: Butlin, Investment in Australian Economic Development, 1861 - 1900. *Australian Economic History Review*, 5, 1: 67 - 70.

Sinclair, W. 1987. Economic history. In Borchardt, D., eds. *Australians, a guide to sources* (Sydney: Fairfax, Syme & Weldon).

Sinclair, W. 1982. Review: Blainey, "A land half won". *Australian Economic History Review*, 22, 1: 79 - 80.

Sinclair, W. A. 1970. Review: Abbott and Nairn, Economic growth of Australia 1788-1821. *Economic Record*, 46, 116: 599.

Six Degrees of Francis Bacon. 2015. *Six degrees of Francis Bacon: Reassembling the early modern social network*, retrieved 4th August 2015, from http://sixdegreesoffrancisbacon.com/.

Skinner, Q. 1969. Meaning and understanding in the history of ideas. *History and Theory*, 8, 1: 3 - 53.

Slone, R. M. 1996. Coauthors' contributions to major papers published in the AJR: frequency of undeserved coauthorship. *American Journal of Roentgenology*, 167, 3: 571-579.

Small, H. 1978. Cited documents as concept symbols. *Social Studies of Science*, 8, 3: 327 - 340.

Snooks, G. 1971. *Hume Enterprises in Australia, 1910 - 1940: A study in micro-economic growth* (Doctor of Philosophy., Australian National University).

Snooks, G. 1988. Shann, Edward Owen Giblin (1884–1935). In eds. *Australian Dictionary of Biography* (Canberra: National Centre of Biography, Australian National University).

Snooks, G. 1990. What should economists be told about the past? A review article. *Australian Economic History Review*, 30, 2: 89 - 94.

Sorenson, O., Rivkin, J. and Fleming, L. 2006. Complexity, networks and knowledge flow. *Research Policy*, 35, 1: 994 - 1017.

Sorenson, O. and Stuart, T. 2001. Syndication networks and the spatial distribution of venture capital investments. *American Journal of Sociology*, 106, 6: 1546 - 1588.

Stember, M. 1991. Advancing the social sciences: Through the interdisciplinary enterprise. *The Social Science Journal*, 28, 1: 1 - 14.

Studer, K. and Chubin, D. 1980. *Cancer mission: Social contexts of biomedical research* (Beverly Hills: Sage Public).

Subramanyam, K. 1983. Bibliometric studies of research collaboration. *Journal of Information Science*, 6, 1: 33 - 38.

Sugihara, K. 2015. Japanese economic history: Exploring diversity in development. In Boldizzoni, F. and Hudson, P., eds. *Routledge handbook of global economic history* (London: Routledge).

Sugihara, K. 2011. The socio-economic history society of Japan. *Information Bulletin of the Union of National Economic Associations in Japan*, 21, 1: 99.

Sula, C. A. 2012. Visualizing social connections in the humanities: Beyond bibliometrics. *Bulletin of the American Society for Information Science and Technology*, 38, 4: 31-35.

Teo, H.-M. and White, R. 2003. *Cultural history in Australia* (Sydney: UNSW Press).

Terrell, J. E. 2013. Social network analysis and the practice of history. In Knappett, C., eds. *Network analysis in archaeology* (Oxford: Oxford University Press).

Thibault, J. and Kelley, H. 1959. *The social psychology of groups* (New York: John Wiley).

Thompson, P. [1978] 2000. *The voice of the past: Oral history (3rd edition)* (Oxford: Oxford University Press).

Thomson, A. 1998. Anzac memories. In Perks, R. and Thomson, A., eds. *The oral history reader* (London: Routledge).

Thomson, A. 1998. Fifty years on: An international perspective on oral history. *The Journal of American History*, 85, 2: 581 - 595.

Toninelli, P. 2002. Europe vs North America: On the epistemological background of the 1940–1980 methodological differences in economic history. *Paper presented to the XIII Congress of the International Economic History Association*, 22 - 26 July, 2002.

Trace, K. 1965. *Australian overseas shipping, 1900 - 60* (Doctor of Philosophy, University of Melbourne).

Turner, S. 2000. What are disciplines? And how is interdisciplinarity different? In Weingart, P. and Stehr, N., eds. *Practicing interdisciplinarity* (Toronto: University of Toronto Press).

Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42, 1: 35 - 67.

Van Der Wee, H. 2007. Economic history: Its past, present and future. *European Review*, 15, 01: 33-45.

Van Oort, F. 2004. *Urban growth and innovation: Spatially bounded externalities in the Netherlands* (Ashgate: Aldershot).

Ville, S. and Wright, C. 2017. Neither a discipline nor a colony: Renaissance and re-imagination in economic history. *Australian Historical Studies*,

Wald, A. M. 1987. *The New York intellectuals: the rise and decline of the anti-Stalinist left from the 1930s to the 1980s* UNC Press Books).

Walker, K., Malkowski, J. and Smith Pfister, D. 2014. A choreography of living texts: Selections from the ARST oral history project. *Rhetoric Review*, 33, 3: 262 - 280.

Wang, C., Rodan, S., Fruin, M. and Xu, X. 2014. Knowledge networks, collaboration networks and exploratory innovation. *Academy of Management Journal*, 57, 2: 484 - 514.

Waterman, A. M. C. 1967. *Fluctuation in the rate of growth: Australia 1948 - 49 to 1963 - 64* (Doctor of Philosophy, Australian National University).

Watkins, M. 1963. A staple theory of economic growth. *Canadian Journal of Economics and Political Science*, 29, 1: 141 - 158.

Watkins, M. and Grant, H. 1993. *Canadian economic history: Classic and contemporary approaches* (Ottawa: Carleton University Press).

Wegner, D. 1987. Transactive memory: A contemporary analysis of the group mind. In Mullen, B. and Goethals, G., eds. *Theories of group behaviour* (New York: Springer-Verlag).

Weiner, C. 1988. Oral history of science: A mushrooming cloud? *The Journal of American History*, 75, 2: 548-559.

Weintraub, E. 1991. *Stabilizing dynamics: Constructing economic knowledge* (Cambridge: Cambridge University Press).

Weintraub, E. and Mirowski, P. 1994. The pure and applied: Bourbakism comes to mathematical economics. *Science in Context*, 7, 2: 245 - 72.

Weintraub, E. R. 2005. Autobiographical memory and the historiography of economics. *Journal of the History of Economic Thought*, 27, 1: 1-11.

Wells, A. 1985. *A Marxist reappraisal of Australian capitalism: The rise of Anglo-colonial finance capital in New South Wales and Victoria, 1830 - 1890* (Doctor of Philosophy, Australian National University).

Wernick, A. 1991. *Promotional culture* (Newbury Park, CA: Sage).

Whaples, R. 1995. Where is the consensus among American economic historians? The results of a survey on forty propositions. *The Journal of Economic History*, 55, 1: 139 - 154.

Whaples, R. and Parker, R. 2013. *Routledge handbook of modern economic history* (New York: Routledge).

Wheelwright, E. L. 1983. Review: Butlin, Barnard and Pincus, "Government and Capitalism". *Economic Record*, 59, 167: 407.

White, H. and McCain, K. 1998. Visualising the discipline: An author cocitation analysis of information science, 1972 - 1995. *Journal of American Society for Information Science*, 49, 1: 327 - 355.

Whitley, R. 1984. *The intellectual and social organisation of the sciences* (Oxford: Clarendon).

Whitwell, G. 1982. *The evolution of Australian Treasury thought since 1945*

Whitwell, G. 1997. Future directions for the Australian Economic History Review. *Australian Economic History Review*, 37, 3: 275 - 281.

Wickberg, D. 2001. Intellectual history vs. the social history of intellectuals. *Rethinking History: The Journal of Theory and Practice*, 5, 3: 383 - 395.

Williams, R. 2009. *Balanced growth: A history of the Department of Economics, University of Melbourne* (Melbourne: Australian Scholarly Publishing).

Wilson, R. 1931. *Capital imports and the terms of trade* (Melbourne: Melbourne University Press).

Withers, G. 2009. David Hewitt Pope, 1944-2007. *Australian Economic History Review*, 49, 2: 198-212.

Woelert, P. and Millar, V. 2013. The 'paradox of interdisciplinarity' in Australian research governance. *Higher Education*, 66, 6: 755 - 767.

Wood, G. 1930. *Borrowing and business in Australia* (Oxford: Oxford University Press).

Wright, C. 2016. The 1920s Viennese intellectual community as a centre for ideas exchange: A network analysis. *History of Political Economy*, 48, 4: 593-634.

Wright, C. and Ville, S. 2017. The evolution of an intellectual community through the words of its founders: Recollections of Australia's economic history field. *Australian Economic History Review*, 57, 3:

Wright, C. and Ville, S. 2017. Visualising interdisciplinary agency: the life cycle of economic history in Australia. *Minerva*,

Ying, T. and Xiao, H. 2012. Knowledge linkage: A social network analysis of tourism dissertation subjects. *Journal of Hospitality and Tourism Research*, 36, 1: 450 - 477.

Young-Bruehl, E. 1982. *Hannah Arendt: For Love of the World* (London: Yale University Press).

Yow, V. 1997. "Do I like them too much?": Effects of the oral history interview on the interviewer and vice-versa. *The Oral History Review*, 24, 1: 55-79.

Zucker, L., Darby, M., Brewer, M. and Peng, Y. 1996. Collaboration structures and information dilemmas in biotechnology: Organisation boundaries as trust production. In Kramer, R. and Tyler, T., eds. *Trust in organisations: Frontiers of theory and research* (Thousand Oaks, CA: Sage).

Zuckerman, H. 1967. Nobel laureates in science: Patterns of productivity, collaboration, and authorship. *American Sociological Review*, 32, 3: 391-403.

Appendix A: Co-location details[1]

Name	*ID code*	*Co-location information*
Abbott, GJ	GA	UNSW 1964 – 1968; UNE 1971 – 1972.

[1] This data base is largely based on official annual university calendars or staff lists. Individuals are listed by department in these sources.
ANU: From 1950, staff lists were contained in the annual reports made to Parliament. CUC reports were separate until the amalgamation of the ANU in 1960. Staff lists contained in 'ANU Calendars' from 1960 – 1980. After this, brief 'Staff Lists' were published.
Melbourne: University of Melbourne Calendars available annually from 1950 – 1991. Calendars operated on financial (rather than calendar) years from 1966 – 1972. Staff lists contained under 'members' of the University.
Sydney: University of Sydney Calendars published annually from 1950 – 1991.
Monash: A 'handbook' was released at the institution's establishment in 1961, which contained a list of staff. No published staff lists in 1962 and 1963. From 1964, staff lists contained in the University Calendar, published annually.
UNSW: Staff lists published in annual Calendars from 1950 – 1970. Staff lists were moved to separate handbooks for each faculty from 1970 – 1991.
Adelaide: University Calendars available from 1950 to 1980. Supplemented with scanned datasets of appointments to the economics school, made available by the University of Adelaide archives. Supplemented by the *Commonwealth Universities Yearbook*.
Flinders: Annual Calendars available from 1967 – 1991.
UWA: List of staff appointed to the economics faculty compiled by UWA archivists. Details of additional scholars chased up by archivists. Supplemented by the *Commonwealth Universities Yearbook*.
Queensland: Official published history of the economics group in A. Kenwood and A. Lougheed, *Economics at the University of Queensland, 1912 - 1997*, Brisbane: University of Queensland, 1997. Supplemented with entries in the *Commonwealth Universities Yearbook*.
UNE: Council minutes that discuss economic history maters (including details of appointments) provided by the UNE archives. Staff lists from 1961 to 1970; Annual Calendars from 1970 to 1991.
La Trobe: Staff lists contained in the La Trobe 'Prospectus', 'Handbook' or 'Calendar'. Scans provided by La Trobe archives.

For the Australian economic history PhD students, the time taken completing their degrees has been included in co-location networks.
Barnard, Cain, Forster, and Parker: ANU Annual Reports throughout the 1950s contains updates on progress of PhD students, including commencement and completion dates.
Schedvin, Sinclair, Jackson, Davison, Merrett, McLean, Hutchinson, Statham, and Whitwell: Details confirmed through oral history interviews. Frost: Correspondence 03.01.2017.
For others, relevant years determined from front-matter in their theses. See de Marchi, *Ricardian orthodoxy*; Dowie, *New Zealand investment* ; Duncan, *Government by audacity*; Keating, *Australian workforce*; Macarthy, *Harvester Judgment*; Sheridan, *Amalgamated Engineering Union*; Trace, *Australian overseas shipping*; Waterman, *Rate of growth*; G. Whitwell, *The evolution of Australian Treasury thought since 1945*, PhD, University of Melbourne, 1982; Pope, *Peopling of Australia*; G. Snooks, *Hume Enterprises in Australia, 1910 - 1940: A study in micro-economic growth*, Doctor of Philosophy., Australian National University, 1971; A. Wells, *A Marxist reappraisal of Australian capitalism: The rise of Anglo-colonial finance capital in New South Wales and Victoria, 1830 - 1890*, Doctor of Philosophy, Australian National University, 1985; D. Oxley, *Convict maids*, Doctor of Philosophy, University of New South Wales, 1991. Commencement and completion dates for those in the 1960s in Schedvin's survey of economic history within Australian universities, Schedvin, 'Economic history in Australian universities'

Aldcroft, DH	DA	USyd 1973 – 1976.
Aldrich, R	RA	USyd 1982 – 1991.
Alford, KA	KA	La Trobe 1983 – 1984; ANU 1985 – 1986; UniMelb 1991.
Ambirajan, S	SA	Qld 1964 – 1965; UNSW 1967 – 1981.
Anderson, JL	JA	La Trobe 1968 – 1991.
Anderson, K	KAn	ANU 1977 – 1983; Adelaide 1984 – 1991.
Appleyard, RT	RAp	ANU 1957 – 1967; WA 1967 – 1991.
Arndt, HW	HA	USyd 1950; ANU 1951 – 1981.
Ash, C	CA	NA (overseas, UK)
Ashton, TS	TA	NA (overseas, UK)
Ashworth, W	WA	NA (overseas, UK)
Bailey, JD	JB	ANU 1953 – 1955
Bambrick, S	SB	ANU 1965 – 1991
Barnard, A	AB	USyd 1950 – 1952; ANU 1957 – 1988
Bate, W	WB	ANU 1969 – 1970; UniMelb 1974 – 1978
Batterham, RL	RB	USyd 1974 – 1991
Bauer, FH	FB	ANU 1952 – 1958; 1981 – 1984
Beever, EA	EB	UniMelb 1959 – 1988
Belz, MH	MB	USyd 1950 – 1964
Bensusan-Butt, DM	DBB	ANU 1962 – 1977
Binet, FE	FBi	UniMelb 1955 – 1956
Birch, A	ABi	USyd 1954 – 1967
Blackett, CE	CB	NA (unknown)
Blackwood, M	MBl	UniMelb 1951 – 1974
Blainey, G	GB	UniMelb 1961 – 1988
Boehm, EA	EBo	UNE 1955 – 1957; UniMelb 1961 – 1991
Bolger, P	PB	NA (overseas, PNG. See affiliation in McCarty and Schedvin 1978).
Bolton, GC	GBo	ANU 1957 – 1961; Monash 1962 – 1965; UWA 1966 - 1973
Bonnell, S	SBo	La Trobe 1982 – 1991 (became Sheila Rimmer in 1988, see King 2016)
Boot, HM	HB	UNE 1968 – 1969; ANU 1970 – 1991
Borrie, WD	WBo	ANU 1950 – 1978
Boulding, KE	KBo	NA (overseas, UK)
Boxer, A	ABo	UniMelb 1952 – 1974
Boyce, PM	PBo	NA (public service)
Bridge, H	HBr	ANU 1965 – 1991
Brown, H	HBro	ANU 1950 – 1971
Buck, A	ABu	ANU 1988; Monash 1989 – 1991
Buckley, K	KBu	USyd 1953 – 1987
Burley, KH	KBur	ANU 1957 – 1960
Burton, H	HBu	ANU 1950 – 1966
Butlin, MW	MBu	NA (public service)
Butlin, NG	NB	USyd 1950; ANU 1951 – 1986

Butlin, SJ	SBu	USyd 1950 – 1971; ANU 1972 – 1975
Cage, RA	RC	UNE 1975 – 1991
Cain, N	NC	UniMelb 1961; ANU 1962 – 1989
Caldwell, JC	JC	ANU 1970 - 1988
Carter, M	MC	ANU 1981 – 1984
Cassidy, P	PC	NA (unknown)
Casson, M	MCa	NA (overseas, UK)
Chambers, RJ	RCh	USyd 1953 – 1982
Chisholm, AH	AC	NA (public service)
Clark, DL	DC	UNSW 1971 – 1991
Coats, AW	ACo	NA (overseas, UK)
Cochrane, D	DCo	UniMelb 1950 – 1960; Monash 1961 – 1978
Corcoran, K	KC	UNSW 1983 – 1989
Corden, M	Mco	UniMelb 1958 – 1961; ANU 1962 – 1967; ANU 1976 – 1985
Cornish, S	SC	ANU 1964 – 1991
Corridon, M	MCorr	NA (unknown)
Covick, O	OC	Flinders 1973 – 1991
Crawford, JG	JCr	ANU 1961 – 1984
Crawford, RM	RCr	UniMelb 1950 – 1969
Crofts, FC	FC	USyd 1954 – 1982
Daly, MT	MD	USyd 1976 – 1991
Davidson, BR	BD	UNE 1963 – 1965; USyd 1966 – 1989
Davies, M	MDa	UWA 1976 – 1991
Davison, G	GD	ANU 1966 – 1968 (*PhD studies); UniMelb 1969 – 1981; Monash 1983 - 1991
de Marchi, N	NdeM	Monash 1964 – 1966; ANU (*PhD studies) 1967 – 1970
de Meel, H	H deM	ANU 1951 – 1953
Diehl, FW	FD	UNE 1971 – 1989; 1991
Dingle, AE	TD	Monash 1966 – 1991
Dixon, R	RD	UniMelb 1978 – 1991
Dowie, JA	JD	ANU 1963 – 1966; 1968 – 1970
Drabble, JH	JDr	USyd 1975 – 1991
Drane, NT	ND	USyd 1953 - 1966
Drummond, FH	FDr	UniMelb 1956 – 1984
Duncan, T	TDu	UniMelb (*PhD studies) 1978 – 1981
Dunkin, HH	HD	UniMelb 1950 – 1975
Dunn, A	AD	UNSW 1988 – 1990
Dunsdorfs, E	ED	UniMelb 1950 – 1969
Dunstan, D	DD	UniMelb 1977; 1979
Dyster, BD	BDy	UNSW 1975 – 1991
Edwards, A	AE	NA (unknown)
Edwards, HR	HE	USyd 1951 – 1965
Eichengreen, B	BE	NA (overseas, US)

Elliot, C	CE	NA (public service)
Encel, S	SE	UniMelb 1953 – 1955; ANU 1956 – 1966; USyd 1967 – 1991
Endres, T	TE	NA (overseas, NZ)
Falkus, ME	MF	Monash 1967 – 1968; UNE 1988 – 1991
Fenner, F	FF	ANU 1950 – 1979
Fieldhouse, DK	DF	NA (overseas, UK)
Fisher, N	NF	NA (public service)
Fitzpatrick, K	KF	UniMelb 1950 – 1962
Fletcher, BH	BF	UNSW 1960 – 1973; USyd 1974 – 1991
Floud, R	RF	NA (overseas, UK)
Fogarty, J	JF	UniMelb 1966 – 1988
Forster, C	CFo	ANU 1954 – 1956 (*PhD studies); UniMelb 1957; ANU 1958 – 1991
Foster, SG	SF	ANU 1980 – 1991
Frank, WT	WF	UWA 1967 – 1991
Freebairn, JW	JFr	ANU 1974 – 1976; La Trobe 1977 – 1985; Monash 1986 – 1991
Freeman, R	RFr	UniMelb 1964 – 1972
Frost, L	LF	Monash 1978 – 1982 (*PhD studies); La Trobe 1986 – 1991
Fry, EC	EF	UWA 1956; UNE 1957 – 1958; ANU 1959 – 1986
Gagg, JES	JG	ANU 1969 – 1991
Gallo, E	EG	NA (overseas, Argentina)
Gardner, P	PG	NA (unknown)
Gerschenkron, A	AG	NA (overseas, US)
Ghosh, R	RG	UWA 1968 – 1991
Gibbney, J	JGi	NA (unknown)
Ginswick, J	JGin	USyd 1951 – 1980
Glynn, S	SG	ANU 1965 – 1969
Goldsmith, RG	RGo	NA (overseas, US)
Gollan, R	RGol	ANU 1953 – 1983
Gregory, A	AGr	NA (overseas, UK)
Gregory, RG	RGr	UniMelb 1962 – 1963; ANU 1969 – 1983
Grimshaw, P	PGr	UniMelb 1977 – 1991
Groenewegen, P	PGro	USyd 1966 – 1991
Gruen, F	FG	ANU 1959 – 1963; Monash 1964 – 1971; ANU 1972 – 1986
Habakkuk, HJ	HH	NA (overseas, UK)
Hackett, E	EH	Adelaide 1958 – 1991
Haig, B	BH	ANU 1963 – 1987
Hainsworth, DR	DH	Adelaide 1965 – 1991
Hall, A	AH	ANU 1951 – 1984
Hall, PK	PH	USyd 1970 – 1989
Hancock, WK	WH	ANU 1957 – 1965
Harcourt, G	GHa	Adelaide 1958 – 1985

Harper, MG	MH	UniMelb 1950 – 1957; 1959; 1967 – 1989. *MG Ronaldson until 1967.
Harris, P	PHa	NA (unknown)
Harris, S	SH	ANU 1976 – 1985
Hart, P	PHar	NA (overseas, UK)
Hartwell, RM	RH	UNSW 1950 – 1956
Hatton, TJ	TH	ANU 1987
Henning, GR	GHe	UniMelb 1966 – 1970; UNE 1973 – 1990
Hicks, Sir J	JH	NA (overseas, UK)
Ho, V	VH	NA (overseas, US)
Hocking, DM	DHo	UniMelb 1950 – 1990
Hodgart, AW	AHo	UniMelb 1972 – 1973; 1975
Howell, D	DHow	NA (unknown)
Huck, EA	EHu	UniMelb 1959 – 1991
Hughes, H	HHu	UNSW 1959 – 1960; Qld 1961 – 1962; ANU 1963 – 1968; ANU 1983 – 1991
Hutchinson, D	DHu	UNSW 1981 – 1983 (*PhD studies); Flinders 1984 – 1985; UniMelb 1987 – 1989; USyd 1990 – 1991
Inkster, IC	II	UNSW 1974 – 1991
Ironmonger, D	DI	UniMelb 1966 – 1991
Isaac, JE	JI	UniMelb 1962 – 1964; Monash 1967 – 1975; 1980 – 1988
Jack, SM	SJ	USyd 1964 – 1971
Jackson, RV	RJ	USyd 1964 – 1967 (*PhD studies); ANU 1968 – 1989; Qld 1990 – 1991
Johnson, MR	MJ	UNSW 1987 – 1989
Johnston, N	NJ	NA (public service)
Jones, EL	EJ	La Trobe 1973; 1976 – 1991
Jones, FL	FJ	ANU 1963 – 1991
Joyce, RB	RJo	Qld 1953 – 1970; La Trobe 1974 – 1985
Keating, M	MK	ANU 1964 – 1983 (*PhD studies 1964 – 1967)
Kelly, A	AK	NA (overseas)
Kelly, MJ	MKe	UniMelb 1959 – 1960; UNSW 1970 (UNSW affiliation in Kelly, 'Eight acres', but no record in UNSW Calendar)
Kenwood, AG	AKen	Qld 1963 – 1991
Kernohan, EA	EK	USyd 1966 – 1991
Kerr, AM	AKer	UWA 1956 – 1974
King, H	HK	NA (public service)
Kmenta, J	JK	USyd 1956 – 1957
La Nauze, JA	JLN	UniMelb 1950 – 1965; ANU 1966 – 1976
Lack, J	JL	UniMelb 1978 - 1991
Lawson, R	RL	NA (overseas *)
Leeper, GW	GL	UniMelb 1950 – 1966
Lewis, A	AL	NA (overseas, *)
Lindner, B	BL	Adelaide (1973 – 1984)

Lloyd, AC	CL	UNE 1975 – 1976; 1987 – 1991
Lockett, P	PL	NA (unknown, record in McLean, et al. 'Rural workforce' says ANU, but no record in ANU Calendar)
Lougheed, AL	ALo	Qld 1965 – 1991
Lovering, J	JLo	UniMelb 1969 – 1987
Mackie, JAC	JM	UniMelb 1950 – 1967; Monash 1968 – 1978; ANU 1980 – 1991
MacKinnon, M	MM	ANU 1987 – 1988
Maddock, R	RM	ANU 1980 – 1987; La Trobe 1988 – 1991
Main, J	JMa	Flinders 1967 – 1984
Manger, G	GM	UNSW 1982 – 1984
Martina, A	AM	ANU 1969 – 1991
Matthews, RCO	RMa	NA (overseas, UK)
McAndrew, J	JMcA	UniMelb 1963 – 1966
McCarty, JW	JMcC	UniMelb 1953 – 1954; UNSW 1959 – 1961; USyd 1962 – 1968; Monash 1969 – 1991
McCloskey, D	DMcC	NA (overseas, US)
McDermott, L	LMcD	NA (unknown)
McGuddie, C	CMcG	NA (unknown)
McLachlan, N	NMcL	UniMelb 1968 – 1991
McLean, IW	IMcL	ANU 1968 – 1971 (*PhD studies); UNE 1972; ANU 1973; Adelaide 1974 – 1980; ANU 1981 – 1982; Adelaide 1983 – 1991
McLeary, A	AMcL	Monash 1978 - 1980
McLelland, P	PMcL	NA (overseas, US)
Meredith, D	DM	UNSW 1974 – 1991
Mereweather, JWT	JMe	UniMelb 1962 – 1980
Merrett, DT	DTM	Monash 1967 – 1989 (*Masters studies 1967 - 1970)
Michael, P	PM	USyd 1970 – 1991
Mills, RC	RMi	NA (university appointments before this period)
Molloy, SF	SM	Casual research assistant at the University of Adelaide, 1989 – 1991, Shanahan correspondence. AEHR record lists Univ Adelaide. No record on University staff lists.
Morris-Suzuki, T	TMS	UNE 1982 – 1991
Mulvaney, DJ	DMu	ANU 1965 – 1985
Murray-Smith, S	SMS	UniMelb 1966 – 1988
Nairn, NB	NN	UNSW 1950 – 1965; ANU 1966 – 1984
Neale, RS	RN	UNE 1965 – 1986
Neave, M	MN	UniMelb 1968 – 1985
Neutze, M	MNe	ANU 1960 – 1991
Nevile, J	JN	UNE 1961 – 1965; UNSW 1966 – 1991
Nicholas, S	SN	UNSW 1976 – 1989; ANU 1990; UNSW 1991
Nunn, HW	HN	NA (unknown)
O'Malley, CB	CO'M	UniMelb 1950 – 1972

Oxley, D	DO	UNSW 1986 – 1989 (*PhD studies); UniMelb 1990 – 1991
Pagan, A	AP	ANU 1974 – 1991
Palmer, G	GP	NA (unknown)
Pardey, P	PP	NA (overseas, US)
Parker, B	BP	NA (overseas, US and UK)
Parker, IA	IP	ANU 1958 – 1960 (*PhD student in RSSS economics group)
Parnaby, J	JP	UniMelb 1967 – 1982
Patrick, A	APat	UniMelb 1950 – 1991
Patterson, GD	GPa	USyd 1957 – 1968
Penrose, ET	EP	ANU 1955
Perkins, JA	JPe	UNSW 1971 – 1991
Perry, L	LP	UNSW 1975 – 1982
Perry, TM	TP	UniMelb 1962 – 1991
Petridis, A	APet	UWA 1964 – 1987
Pincus, JJ	JJP	Monash 1964 – 1965; ANU 1972 – 1984; Flinders 1985 – 1990; Adelaide 1991
Polgaze, J	JPo	UniMelb 1950 – 1977
Pope, D	DP	Monash 1966 – 1969 (*Masters study); ANU 1973 – 1976 (*PhD studies, thesis was submitted in 1976, so it's a guess); UNSW 1977 – 1990; ANU 1991 *visiting fellow in RSSS in 1988 - 1989
Pope, R	RP	UNSW 1977 – 1990
Presnell, LS	LPr	NA (overseas, UK)
Prest, W	WP	UniMelb 1950 – 1972. Melbourne economist. Not to be confused with Adelaide historian Wilfrid Prest. "Professor W Prest" was thanked in Boehm (1971b); Boehm's location in the economics dept at UniMelb means it was probably the former.
Pursell, GG	GPu	ANU 1956 – 1958; Monash 1962 – 1973
Rao, B	BR	UNSW 1972 – 1991
Rawson, D	DR	ANU 1964 – 1991
Reece, BF	BRe	UNE 1963 – 1985
Richards, ES	ER	Flinders 1971 – 1991
Richardson, PGL	PR	UniMelb 1982 – 1989
Richardson, S	SR	La Trobe 1970 – 1972; Flinders 1979 – 1991
Rimmer, WG	WR	UNSW 1969 – 1991
Roberson, PL	PRo	UniMelb 1976 – 1988
Roberts, JE	JR	USyd 1979 – 1991
Robinson, J	JRo	NA (UOW)
Robinson, KW	KR	NA (Newcastle)
Robson, LL	LR	UniMelb 1963 – 1988
Rose, PJB	PRos	UniMelb 1964 – 1991
Rostow, WW	WRo	NA (overseas, US)
Rutherford, RSJ	RR	USyd 1950 – 1980
Salsbury, SM	SS	USyd 1977 – 1991

Sampson, G	GS	Monash 1966 – 1975
Sawer, G	GSa	ANU 1950 – 1970; UniMelb 1971 – 1974
Sayers, RS	RS	NA (overseas, UK)
Schedvin, CB	CBS	USyd 1960 – 1964 (*PhD studies); 1966 – 1973; Monash 1973 – 1979; UniMelb 1979 – 1991
Scott, R	RSc	NA (unknown)
Segal, L	LS	NA (unknown)
Semmens, EF	ES	NA (unknown)
Serle, G	GSe	UniMelb 1950 – 1961; Monash 1962 – 1983
Shaw, AGL	AS	UniMelb 1950 – 1952; USyd 1953 – 1964; Monash 1965 – 1981
Shergold, P	PS	UNSW 1972 – 1989
Sheridan, T	TS	UNE 1963 – 1964; ANU 1965 – 1967 (*PhD studies); Adelaide 1968 - 1991
Shlomowitz, R	RSh	Flinders 1975 – 1991
Sier, D	DS	NA (unknown)
Sigsworth, EM	ESi	NA (overseas, UK)
Simkins, CGF	CSi	USyd 1969 – 1980
Sinclair, WA	WS	UniMelb 1953; ANU 1954 – 1955; UniMelb 1958 – 1960; Monash 1961 – 1968; La Trobe 1968 – 1973; Flinders 1973 – 1982; Monash 1983 – 1991.
Smith, FB	FS	UniMelb 1962 – 1965; ANU 1966 – 1991
Snooks, G	GSn	UWA 1965 – 1967 (*Masters study); ANU 1968 – 1971 (*PhD study); Flinders 1973 – 1989; ANU 1990 – 1991
Spenceley, GF	GSpe	Monash 1970 – 1991
Stacpoole, H	HS	NA (public service)
Statham, P	PSt	UWA 1966 – 1987; ANU 1988; UWA 1989 – 1991
Steven, MJE	MS	ANU 1962 – 1972
Swan, TW	TSw	ANU 1950 – 1983
Templeton, J	JT	UniMelb 1965 – 1991
Thomas, M	MT	Mark Thomas, contributor to *Recovery*. NA (overseas, US)
Thomas, Me	MeT	Meredith Thomas, contributor to *Aust Capital Cities*. Honours graduate at UWA. NA.
Thompson, AG	AT	UniMelb 1960 – 1991
Tipton, FB	FT	USyd 1980 - 1991
Trace, K	KT	UniMelb 1962 – 1965 (*PhD studies); Monash 1972 – 1991
Troy, P	PT	ANU 1966 – 1991
Tsokhas, K	KTs	ANU 1984 – 1985; 1987 – 1991
Tucker, GSL	GT	UniMelb 1950 – 1952; 1954 – 1960; ANU 1961 – 1980
Tucker, KA	KTu	ANU 1972 – 1976
Turner, I	IT	Adelaide 1962 – 1963; Monash 1964 - 1978
Valentine, TJ	TV	ANU 1972 – 1980
Vamplew, W	WV	Flinders 1975 – 1991

Vanden Driesden, I	IVD	UWA 1971 – 1991
Vicziany, AM	AV	UniMelb 1977 – 1980; Monash 1981 – 1991
Vines, A	AVi	NA (unknown)
Walker, A	AW	NA (overseas, UK)
Walsh, GP	GW	NA (*PhD in history at ANU, then at institutions not in this study)
Ward-Perkins, CN	CW-P	NA (overseas, UK)
Waterman, AMC	AWa	ANU 1964 – 1967 (*PhD studies)
Wells, A	AW	ANU 1981 – 1983 (*PhD studies)
Wheelwright, T	TW	USyd 1953 – 1986
White, RC	RW	NA (public service)
Whitehead, DH	DW	Adelaide 1958 – 1965; UNE 1966; La Trobe 1967 – 1973
Whitwell, GJ	GWh	Monash 1978 (*PhD studies); UniMelb 1979 – 1991 (1979 to 1982, PhD studies)
Williams, M	MW	NA (overseas, UK)
Williamson, JG	JW	NA (overseas, US)
Wilson, RK	RWi	UniMelb 1950 – 1988
Witchard, L	LW	ANU 1963 – 1973
Withers, G	GWi	La Trobe 1969 – 1970; ANU 1976 – 1979; 1983 – 1986; La Trobe 1987 - 1991
Wood, J	JWo	UniMelb 1950 – 1968
Woodruff, W	WW	UniMelb 1956 – 1966
Worral, T	TWo	NA (overseas, UK)
Wotherspoon, GC	GWo	USyd 1975 – 1991
Wright, JF	JWr	NA (overseas, UK)
Yates, B	BY	NA (public service)
Youngman, DV	DY	NA (public service)
Yule, P	PY	NA (public service)

Appendix B: Economic history appointments[1]

**in economics department (before there was a separate dept)
*** other appointments in other departments

ANU RSSS

Butlin, NG	1951 – 1986 (1951 – 61 in Economics department)
De Meel, H	1951 – 1953**
Bailey, JD	1953 – 1955**
Sinclair, WA	1954 – 1955**
Inall, R	1954 – 56; 1959 – 60**
Pursell, GG	1956 – 58**
Barnard, A	1957 – 88 (1957 – 61 in economics department)
Haig, BD	1963 – 69; 1971 – 1973***
Hughes, H	1963 – 68
Hutchings, RFG	1964 – 66
Stevens, FS	1965 – 67
Troy, PN	1966 - 69
Cain, N	1967 – 89
Dowie, JA	1968 – 69
Butlin, SJ	1971 – 75
Tucker, KA	1972 – 76
Pincus, JJ	1972 – 86
Mori, T	1972 – 73
Kelly, JH	1972
Joy, CS	1975
Coward, D	1976 – 82
La Nauze, JA	1977 – 79 (visiting)
Hancock, WK	1977 – 88 (honorary)
Gerritsen, R	1979 – 82
McLean, IW	1981 – 82
Maddock, R	1981 – 84
Bauer, FH	1981 – 84
Moyal, AV	1982
Withers, G	1983 – 86***
Alford, KA	1985 – 86
Tsokhas, K	1987 – 90***
Alston, LH	1987 (visiting)
Mackinnon, M	1987 – 88 (visiting)
Hatton TJ	1987 (visiting)
Allen, RC	1988 (visiting)
Pope, DH	1988 – 1990 (1988 – 89 as visiting)

[1] Determined from departmental lists in Calendars/Annual reports. See Appendix A for discussion of these sources.
** indicates the scholar was appointed to an economics department. This includes economic historians appointed to economics groups before that university had a separate departments in economic history, or those whose institution never had a separate department.
*** indicates economic historians appointments in other departments (history, political science, geography and so on).

Statham, PC	1988 (visiting)
Snooks, GD	1990

ANU Faculties

Burton, H	1950 – 64
White, L	1950 – 55
Barnard, A	1953; 1955 – 57
Cole, RW	1953 - 54
Hall, AR	1953
Butlin, NG	1954
Sinclair, WA	1954 – 55
Forster, C	1957 – 1991
Olsen, BM	1959 (visiting)
Tucker, GSL	1960 – 80
Cain, N	1962 – 66
Dowie, JA	1964 – 65
Glynn, S	1965 – 69
Bridge, H	1965 – 1991 (not in Calendars beyond 1968)
Cornish, S	1967 – 91
Jackson, RV	1968 – 90
Gagg, JES	1969 – 91
Martina, A	1969 – 91
Boot, HM	1970 – 91
Cruise, HF	1974
Lansley, DC	1981 – 82
Buck, AR	1988
Hughes, DL	1989 – 91
Bordo, MD	1989 (visitor)
Schwartz, AJ	1989 (visitor)
White, LH	1989 (visitor)
Ville, SP	1991

University of Melbourne

La Nauze, JA	1950 – 55; 1955 – 65***
Dunsdorfs, E	1950 – 69
Cairns, JF	1950 – 55
Egerton, RAD	1950
Tucker, GSL	1950 – 51; 1954 – 60
Mitchell, AM	1950
Schnierer, F	1950 - 51
Harper, MG	1950 – 57; 1959 (nee Ronaldson); 1967 – 89
Grice, AM	1951
Chernick, S	1952 – 54
Sinclair, WA	1953 – 54; 1958 – 61
Hancock, KJ	1956 – 57
Woodruff, W	1958 – 66
Forster, C	1957
Clarkson, LA	1959 – 61
Killip, JH	1959 – 62; 1989 - 91

Rangnekar, DK	1959
Beever, EA	1959 – 88
Macneil, IP	1959 – 61
Kelly, MJ	1959 – 60
Blainey, G	1960; 1962 – 88
Thompson, AG	1960 – 91
Cain, N	1961
Kotono, T	1962 – 67
Kolko, G	1962
Munday, BJ	1962 – 71
Matsuda, S	1962
Witthoft, H	1962
Trace, K	1962 – 66
Middleman, R	1963 – 74
Hanna, J	1963 – 65
Shaw, J	1963 – 67
Kie, TT	1963 – 65
Ishigaki, H	1963 – 65
Freeman, R	1964 – 72
Koefod, P	1964
Fogarty, J	1966 – 88
Henning, G	1966 – 70
Bredrichs, I	1966 – 67
Spaull, A	1966 – 67
Parsons, TG	1968 – 70
Phillips, D	1969 - 71
Remenyi, J	1969 – 72
Fitzgerald, C	1971
Forde, D	1971; 1973; 1975
Hodgart, AW	1972 – 73; 1975
Fricker, LA	1973
Robson, RM	1974
Robertson, PL	1976 – 88
Kennedy, MJ	1976 – 81
Vicziany, AM	1977 – 80
Carter, B	1977; 1984 - 86
Soukup, JJ	1977 – 79
Rowley, K	1977
Schedvin, CB	1979 – 91
Muir, R	1979 – 81
Tyers, JJ	1980 – 82
Ali, CI	1981 – 83
Whitwell, GJ	1982 – 91
Melling, JL	1982
Richardson, PGL	1982 – 89
Baker, MJM	1983
Adler, KM	1984
Mouritz, K	1985 – 86
Scott, AC	1985; 1987 – 88
Hutchinson, DH	1986 – 89
Sydenham, DM	1986 – 91

Lansley, D	1986 – 87; 1989
Samuel, MJ	1988 – 91
Kerr, RG	1989 – 91
Sharman, NS	1989 – 91
Merrett, DT	1990 – 91
Oxley, D	1990 – 91
Abbott, MJ	1990 – 91
Gillban, LR	1991

Monash

Sinclair, WA	1964 – 67**; 1983 – 91***
Pincus, JJ	1964 – 65**
De Marchi, N	1964 – 66**
Pursell, GG	1964 – 72***
Dingle, AE	1967 – 71**; 1972 – 91
Merrett, DT	1967 – 71**; 1972 – 89
McCarty, JW	1968 – 71**; 1972 – 91
Spenceley, GF	1970 -71**; 1972 – 91
Trace, K	1972 – 91
Schedvin, CB	1973 – 79
Poprzeczny, JJ	1974 – 75
Moloney, J	1974
Adams, MG	1975 – 77
Atkins, J	1975 – 76
Gribble, IA	1976 – 79
Ward, AJ	1978 – 79
McLeary, A	1978 – 80
Kennett, JA	1979
Sydenham, DH	1980 – 82
Henningham, SC	1980 – 81
S'men, IK	1980
Vicziany, AM	1981 – 91
Plympton, AE	1982
Falla, S	1984 – 87
Bartrop, PR	1985 – 86
McArthur, JM	1988 – 90
Buck, A	1989 – 91
De Souza, C	1991
Wilde, S	1991

Sydney

Butlin, SJ	1950 – 1971**
Butlin NG	1950 - 51
Ginswick, J	1951 – 70**; 1971 – 80
Barnard, A	1952**
Buckley, KD	1953 – 1970**; 1971 – 87
Birch, A	1954 – 66**
McCarty, JW	1962 – 67**

Jack, SM	1964 – 70**; 1971
Schedvin, CB	1968 – 70**; 1971 – 73
Hall, PK	1970**; 1971 – 89
Wotherspoon, GC	1971; 1975 – 91
Tucker, BM	1973 – 79
Forde, D	1973
Aldcroft, DH	1973 – 76
Koenig, LJ	1974 – 77
Drabble, JH	1975 – 91
Salsbury, SM	1977 – 91
Tipton, FB	1980 – 91
Aldrich, R	1982 – 91
Shields, J	1982
Bowman, L	1988
Downing, L	1988
Hutchinson, D	1990 – 91
Allen, M	1991

UNSW

Hartwell, RM	1951 – 56***
Hughes, H	1959 – 60**
McCarty, JW	1959 – 61**
Abbott, GJ	1964 – 68**
Ambirajan, S	1967 – 70**; 1971 – 81
Rimmer, WG	1969 – 70**; 1971 – 91
Clark, DL	1971 – 91
Perkins, JA	1971 – 91
Thompson, MJ	1972
Shergold, PJ	1973 – 89
Morgan, KL	1973 – 77
Inkster, IC	1974 – 91
Meredith, D	1974 – 91
Harley, PE	1974
Williams, JV	1974 – 77
Dyster, BD	1975 – 91
Chittick, GK	1975 – 78
Nicholas, SJ	1976 – 90
Nolan, PH	1977 – 78
Pope, DH	1977 – 90
Ali, CI	1978 – 81
Doran, LC	1978
McPhee, GJ	1979 – 84
Sigel, LT	1980 – 89
Mort, D	1982
Johnson, MR	1987 – 89
Blair, AL	1988 – 90
Dunn, A	1988 – 90
Graves, A	1989
Le Maistre, BL	1989

Flinders University

Broadberry, SA	1970 – 72
Richards, ES	1971 – 75; 1976 – 91***
Sinclair, WA	1973 – 82
Snooks, GD	1974 – 89
Shlomowitz, R	1975 – 91
Vamplew, W	1975 – 91
Hutchinson, D	1984 – 85
Pincus, JJ	1985 - 90
Nyland, CT	1988
Smith, PLM	1989 – 91
Barrett, SRF	1990

University of Adelaide

Whitehead, D	1958 – 65**
Richards, ES	1964 – 67**
Sheridan, T	1968 – 91**
Richardson, S	1974 – 91**
McLean, IW	1974 – 91**
Pincus, JJ	1991**

University of Queensland

Hughes, H	1961 – 63**
Kenwood, AG	1963 – 91**
Ambirajan, S	1964 – 65**
Lougheed, AL	1965 – 91**

University of New England

Duncan, R	1961 – 62** (from archives, in charge of EH units)
Sheridan, T	1963 – 64**
Whitehead, DM	1965 – 66
Neale, RS	1965 – 86
Boot, HM	1969 – 70
Beer, J	1969 – 70
Chamberlain, J	1971 (*potentially married name of J Beer)
Abbott, GJ	1971 – 72
Diehl, FW	1971 – 89
McLean, IW	1972
Henning, GR	1973 – 90
Walsh, MI	1974 – 78
Cage, RA	1975 – 91
Lloyd, AC	1975 – 76; 1987 – 91
Fisher, S	1977; 1982 – 85

Ramsey, G	1977
McMichael, PD	1978 – 79
Nichol, W	1979 – 83
Ramsay, EG	1979 – 80
Purcell, WR	1980
Morris-Suzuki, TII	1982 – 91
Fitzgerald, SH	1987
Falkus, ME	1988 – 91
Cordery, CL	1988 – 89
Kitching, B<	1988 – 91
Kaplan, GT	1988 – 91
Kaur, A	1991
Van der Krann, A	1991

University of Western Australia

Statham, P	1966 – 91**
Frank, WT	1967 – 91**
Appleyard, RT	1967 – 91**
Vanden Driesden, IH	1971 – 91**
Davies, M	1976 – 91**

La Trobe University

Whitehead, DH	1967 – 80**
Dening, GM	1969 – 71***
Anderson, JL	1968 – 89**; 1990 – 91
Sinclair, WA	1969 – 1973**
Withers, G	1969 – 70**; 1987 – 91**
Richardson, S	1970 – 72**
Jones, EL	1973**; 1976 – 89**; 1990 – 91
Falkus, ME	1977**
White, CM	1979 – 1990**; 1991
Alford, KA	1983 – 84**
Frost, LE	1986 – 89**; 1990 – 91
Maddock, R	1988 – 91**
Doddrell, M	1987 – 89**; 1990 – 91
Frost, W	1988 – 89**; 1990 – 91
Mouritz, K	1989**; 1990 – 91

Appendix C: Individuals and their social networks

		Part 2: 1950 – 1970				*Part 3: 1971 – 1991*			
Name	*ID code*	*Co-location*	*Co-auth*	*Ed work*	*Sub-auth*	*Co-location*	*Co-auth*	*Ed work*	*Sub-auth*
Abbott, GJ	GA	x	x	x	x	x			
Aldcroft, DH	DA					x			
Aldrich, R	RA					x			
Alford, KA	KA					x			x
Ambirajan, S	SA	x				x			
Anderson, JL	JA	x				x			x
Anderson, K	KAn					x		x	
Appleyard, RT	RAp	x				x			x
Arndt, HW	HA	x	x		x	x			
Ash, C	CA								x
Ashton, TS	TA				x				
Ashworth, W	WA				x				
Bailey, JD	JB	x			x				
Bambrick, S	SB	x				x			x
Barnard, A	AB	x	x	x	x	x	x	x	x
Bate, W	WB	x				x		x	
Batterham, RL	RB					x			x
Bauer, FH	FB	x				x			
Beever, EA	EB	x			x	x			x
Belz, MH	MB	x			x				
Bensusan-Butt, DM	DBB	x				x			
Binet, FE	FBi	x			x				
Birch, A	ABi	x							
Blackett, CE	CB				x				
Blackwood, M	MBl	x				x			x
Blainey, G	GB	x			x	x			x
Boehm, EA	EBo	x				x			x
Bolger, P	PB							x	
Bolton, GC	GBo	x				x			x
Bonnell, S	SBo					x			x
Boot, HM	HB	x				x			
Borrie, WD	WBo	x			x	x			
Boulding, KE	KBo							x	
Boxer, A	ABo	x				x			x
Boyce, PM	PBo						x	x	x
Bridge, H	HBr	x			x	x	x	x	
Brown, H	HBro	x				x			
Buck, A	ABu					x			x
Buckley, K	KBu	x				x	x		
Burley, KH	KBur	x			x				
Burton, H	HBu	x			x				
Butlin, MW	MBu						x	x	x
Butlin, NG	NB	x	x	x	x	x	x	x	x
Butlin, SJ	SBu	x			x	x	x		
Cage, RA	RC					x			
Cain, N	NC	x		x	x	x	x		x
Caldwell, JC	JC					x			
Carter, M	MC					x	x	x	x
Cassidy, P	PC				x				
Casson, M	MCa								x

Chambers, RJ	RCh	x			x	x			
Chisholm, AH	AC								x
Clark, DL	DC					x			
Coats, AW	ACo								x
Cochrane, D	DCo	x			x	x			
Corcoran, K	KC					x			
Corden, M	Mco	x			x	x			x
Cornish, S	SC	x				x			x
Corridon, M	MCorr								x
Covick, O	OC					x			x
Crawford, JG	JCr	x				x			
Crawford, RM	RCr	x			x				
Crofts, FC	FC	x				x			x
Daly, MT	MD					x		x	
Davidson, BR	BD	x			x	x		x	x
Davies, M	MDa					x			x
Davison, G	GD	x				x		x	x
de Marchi, N	NdeM	x							
de Meel, H	H deM	x	x		x				
Diehl, FW	FD					x			
Dingle, AE	TD	x				x	x	x	x
Dixon, R	RD					x			x
Dowie, JA	JD	x	x	x	x	x			
Drabble, JH	JDr					x			
Drane, NT	ND	x			x				
Drummond, FH	FDr	x			x	x			
Duncan, T	TDu					x	x	x	x
Dunkin, HH	HD	x			x	x			
Dunn, A	AD					x			x
Dunsdorfs, E	ED	x			x				
Dunstan, D	DD					x			x
Dyster, BD	BDy					x	x	x	x
Edwards, A	AE				x				
Edwards, HR	HE	x							
Eichengreen, B	BE							x	
Elliot, C	CE				x				
Encel, S	SE	x			x	x			
Endres, T	TE						x	x	
Falkus, ME	MF	x				x			
Fenner, F	FF	x				x			x
Fieldhouse, DK	DF			x					
Fisher, N	NF								x
Fitzpatrick, K	KF	x			x				
Fletcher, BH	BF	x		x		x			
Floud, R	RF								x
Fogarty, J	JF	x			x	x	x	x	x
Forster, C	CFo	x		x	x	x	x	x	x
Foster, SG	SF					x			x
Frank, WT	WF	x				x			x
Freebairn, JW	JFr					x		x	x
Freeman, R	RFr	x				x			
Frost, L	LF					x			x
Fry, EC	EF	x				x		x	x

Gagg, JES	JG	x				x			x
Gallo, E	EG								x
Gardner, P	PG								x
Gerschenkron, A	AG								x
Ghosh, R	RG	x				x			x
Gibbney, J	JGi								x
Ginswick, J	JGin	x				x	x	x	
Glynn, S	SG	x				x	x	x	x
Goldsmith, RG	RGo				x				
Gollan, R	RGol	x		x		x			
Gregory, A	AGr								x
Gregory, RG	RGr	x				x	x	x	x
Grimshaw, P	PGr					x			x
Groenewegen, P	PGro	x				x			x
Gruen, F	FG	x		x		x			x
Habakkuk, HJ	HH				x				
Hackett, E	EH	x				x			
Haig, B	BH	x			x	x	x		x
Hainsworth, DR	DH	x		x		x			
Hall, A	AH	x			x	x	x		x
Hall, PK	PH	x				x			
Hancock, WK	WH	x			x				
Harcourt, G	GHa	x				x			x
Harper, MG	MH	x				x			x
Harris, P	PHa						x		
Harris, S	SH					x			x
Hart, P	PHar								x
Hartwell, RM	RH	x		x	x				
Hatton, TJ	TH					x			
Henning, GR	GHe	x				x			
Hicks, Sir J	JH				x				x
Ho, V	VH						x	x	
Hocking, DM	DHo	x			x	x			
Hodgart, AW	AHo					x			x
Howell, D	DHow				x				
Huck, EA	EHu	x			x	x			
Hughes, H	HHu	x		x	x	x			x
Hutchinson, D	DHu					x			x
Inkster, IC	II					x			x
Ironmonger, D	DI	x				x			x
Isaac, JE	JI	x				x			x
Jack, SM	SJ	x				x			
Jackson, RV	RJ	x				x	x	x	x
Johnson, MR	MJ					x			x
Johnston, N	NJ								x
Jones, EL	EJ					x			x
Jones, FL	FJ	x				x			x
Joyce, RB	RJo	x		x		x			
Keating, M	MK	x				x	x		x
Kelly, A	AK				x				
Kelly, MJ	MKe	x						x	
Kenwood, AG	AKen	x				x			
Kernohan, EA	EK	x				x			x

Kerr, AM	AKer	x				x			x
King, H	HK				x				
Kmenta, J	JK	x			x				
La Nauze, JA	JLN	x			x	x			x
Lack, J	JL					x			x
Lawson, R	RL							x	
Leeper, GW	GL	x			x				x
Lewis, A	AL								x
Lindner, B	BL					x			x
Lloyd, AC	CL					x			
Lockett, P	PL						x		
Lougheed, AL	ALo	x				x		x	
Lovering, J	JLo	x				x			x
Mackie, JAC	JM	x			x	x			
MacKinnon, M	MM					x			x
Maddock, R	RM					x	x	x	x
Main, J	JMa	x				x			x
Manger, G	GM					x			x
Martina, A	AM	x				x			
Matthews, RCO	RMa				x				
McAndrew, J	JMcA	x			x				
McCarty, JW	JMcC	x			x	x	x	x	x
McCloskey, D	DMcC								x
McDermott, L	LMcD						x	x	
McGuddie, C	CMcG								x
McLachlan, N	NMcL	x				x			x
McLean, IW	IMcL	x				x	x	x	x
McLeary, A	AMcL					x			x
McLelland, P	PMcL								x
Meredith, D	DM					x	x	x	x
Mereweather, JWT	JMe	x			x	x			
Merrett, DT	DTM	x				x	x	x	x
Michael, P	PM	x				x			
Mills, RC	RMi				x				
Molloy, SF	SM	x					x		
Morris-Suzuki, T	TMS					x			
Mulvaney, DJ	DMu	x			x	x			x
Murray-Smith, S	SMS	x			x	x			
Nairn, NB	NN	x	x	x		x			
Neale, RS	RN	x				x			
Neave, M	MN	x				x			x
Neutze, M	MNe	x				x			
Nevile, J	JN	x				x			x
Nicholas, S	SN					x	x	x	x
Nunn, HW	HN				x				
O'Malley, CB	CO'M	x			x	x			
Oxley, D	DO					x		x	
Pagan, A	AP					x		x	x
Palmer, G	GP				x				
Pardey, P	PP								x
Parker, B	BP								x
Parker, IA	IP	x			x				

Parnaby, J	JP	x				x			x
Patrick, A	APat	x				x			x
Patterson, GD	GPa	x							
Penrose, ET	EP				x				
Perkins, JA	JPe					x		x	x
Perry, L	LP					x			x
Perry, TM	TP	x				x	x	x	
Petridis, A	APet	x				x			x
Pincus, JJ	JJP	x				x	x	x	x
Polgaze, J	JPo	x			x	x			
Pope, D	DP	x				x	x	x	x
Pope, R	RP					x			x
Presnell, LS	LPr								x
Prest, W	WP	x				x			x
Pursell, GG	GPu	x			x	x			
Rao, B	BR					x			x
Rawson, D	DR	x				x			x
Reece, BF	BRe	x				x			x
Richards, ES	ER					x			
Richardson, PGL	PR					x			
Richardson, S	SR	x				x	x		x
Rimmer, WG	WR	x		x		x			x
Roberson, PL	PRo					x			x
Roberts, JE	JR					x			x
Robinson, J	JRo								x
Robinson, KW	KR			x					
Robson, LL	LR	x			x	x			x
Rose, PJB	PRos	x			x	x			
Rostow, WW	WRo								x
Rutherford, RSJ	RR	x			x	x			
Salsbury, SM	SS					x			
Sampson, G	GS	x				x			x
Sawer, G	GSa	x			x	x			
Sayers, RS	RS				x				
Schedvin, CB	CBS	x			x	x	x	x	x
Scott, R	RSc								x
Segal, L	LS								x
Semmens, EF	ES				x				
Serle, G	GSe	x			x	x			x
Shaw, AGL	AS	x		x		x			
Shergold, P	PS					x	x	x	x
Sheridan, T	TS	x				x			x
Shlomowitz, R	RSh					x			x
Sier, D	DS								x
Sigsworth, EM	ESi				x				
Simkins, CGF	CSi	x			x	x			
Sinclair, WA	WS	x		x	x	x	x		x
Smith, FB	FS	x				x			x
Snooks, G	GSn	x				x		x	x
Spenceley, GF	GSpe	x				x			x
Stacpoole, H	HS				x				
Statham, P	PSt	x				x	x	x	x
Steven, MJE	MS	x		x	x	x			x
Swan, TW	TSw	x			x	x			

Templeton, J	JT	x				x			x
Thomas, M	MT							x	x
Thomas, Me	MeT							x	
Thompson, AG	AT	x				x			
Tipton, FB	FT	x				x			
Trace, K	KT	x			x	x			
Troy, P	PT	x				x			
Tsokhas, K	KTs					x			
Tucker, GSL	GT	x			x	x			x
Tucker, KA	KTu					x			x
Turner, I	IT	x				x		x	
Valentine, TJ	TV					x		x	x
Vamplew, W	WV					x	x	x	
Vanden Driesden, I	IVD					x			x
Vicziany, AM	AV					x			
Vines, A	AVi								x
Walker, A	AW								x
Walsh, GP	GW			x	x				x
Ward-Perkins, CN	CW-P				x				
Waterman, AMC	AWa	x							
Wells, A	AW					x			x
Wheelwright, T	TW	x			x	x	x		
White, RC	RW						x		
Whitehead, DH	DW	x				x			
Whitwell, GJ	GWh					x			x
Williams, M	MW							x	
Williamson, JG	JW								x
Wilson, RK	RWi	x			x	x			
Witchard, L	LW	x				x			x
Withers, G	GWi	x				x	x	x	x
Wood, J	JWo	x			x	x			x
Woodruff, W	WW	x			x				
Worral, T	TWo								x
Wotherspoon, GC	GWo					x			
Wright, JF	JWr				x				
Yates, B	BY								x
Youngman, DV	DY								x
Yule, P	PY								x

Appendix D: List of texts included in the knowledge network corpus

The list represents a selected corpus of key works of Australian economic history, written between 1950 and 1991. Texts were selected from wide reading of the subject, with further guidance from secondary analyses that focus on the published work of the field. The corpus was filled out by paying attention to the main joint projects, and the contents of the group's main journal – the *Australian Economic History Review* (*AEHR*). This list is intended to be representative rather than exhaustive.

1950 - 1970

	Pages	*Primary methodology*
Abbott, G. J. 1965. Staple theory and Australian economic growth, 1788 - 1820. *Business Archives and History*, 5, 2: 142 - 54.	13	Deductive
Abbott, G. J. and Nairn, N. B. 1969. *Economic growth of Australia 1788-1821* (Melbourne: Melbourne University Press).	361	Analytical
Arndt, H. W. and Butlin, N. G. 1950. National output, income and expenditure of N.S.W., 1891. *Economic Record*, 26, 50: 30 - 49.	20	Orthodox
Bailey, J. D. 1956. *Growth and depression: Contrasts in the Australian and British economies 1870 - 1880* (Canberra: ANU Press).	136	Orthodox
Bailey, J. D. 1966. *A hundred years of pastoral banking: A history of the Australian Mercantile Land and Finance Company, 1863-1963* (Oxford: Clarendon Press).	292	Analytical
Barnard, A. 1958. *The Australian wool market, 1840-1900* (Melbourne: Melbourne University Press).	238	Orthodox
Barnard, A. 1962. A century and a half of wool marketing. In Barnard, A., eds. *The simple fleece* (Canberra: ANU Press).	15	Orthodox
Barnard, A. 1961. *Visions and profits: studies in the business career of Thomas Sutcliffe Mort* (Melbourne: Melbourne University Press).	234	Analytical
Bauer, F. 1962. Sheep-raising in Northern Australia. In Barnard, A., eds. *The simple fleece* (Canberra: ANU Press).	18	Analytical
Beever, E. A. 1963. The Australian wool clip 1861 - 1900. *Economic Record*, 39, 88: 437 - 464.	28	Orthodox
Beever, E. A. 1968. Further comments on the origin of the wool industry in New South Wales. *Australian Economic History Review*, 8, 2: 122 - 127.	6	Orthodox
Beever, E. A. 1964. In defence of bale-values. *Economic Record*, 40, 90: 248-254.	7	Orthodox
Beever, E. A. 1965. The origin of the wool industry in New South Wales. *Australian Economic History Review*, 5, 2: 91 - 106.	16	Orthodox
Beever, E. A. 1969. A reply to Mr. Fogarty's note. *Australian Economic History Review*, 9, 1: 53 - 63.	3	Orthodox
Beever, E. A. 1964. Spider without a web. *Economic Record*, 40, 91: 467-471.	5	Orthodox
Birch, A. 1966. The organization and economics of Pacific Islands' labour in the Australian sugar industry, 1863-1906. *Australian Economic History Review*, 6, 1: 53 - 76.	24	Analytical

Birch, A. 1965. The origins of the Colonial Sugar Refining Company 1841-1855. *Australian Economic History Review*, 5, 1: 21 - 31.	11	Analytical
Blainey, G. 1963. Herbert Hoover's forgotten years. *Australian Economic History Review*, 3, 1: 53 - 70.	18	Analytical
Blainey, G. 1954. *The peaks of Lyell* (Melbourne: Melbourne University Press).	341	Analytical
Blainey, G. 1963. *The rush that never ended: A history of Australian mining* (Melbourne: Melbourne University Press).	431	Analytical
Blainey, G. 1964. Technology in Australian history. *Business Archives and History*, 4, 2: 117 - 137.	21	Deductive
Blainey, G. 1970. A theory of mineral discovery: Australia in the nineteenth century. *Economic History Review*, 23, 2: 298 - 313.	16	Deductive
Blainey, G. 1966. *The tyranny of distance* (Melbourne: Sun Books).	413	Deductive
Boehm, E. A. 1965. Measuring Australian economic growth, 1861 to 1938-39. *Economic Record*, 41, 94: 207 - 239.	33	Orthodox
Boehm, E. A. 1971. *Prosperity and depression in Australia, 1887-1897* (Oxford: Clarendon Press).	380	Orthodox
Butlin, N. G. 1962. *Australian domestic product, investment and foreign borrowing 1861 -1938/9* (London: Cambridge University Press).	475	Orthodox
Butlin, N. G. 1959. Colonial socialism in Australia. In Aitken, H. G. J., eds. *The state and economic growth: Papers of a conference held on October 11-13, 1956 under the auspices of the Committee on Economic Growth* (New York: Social Science Research Council).	20	Orthodox
Butlin, N. G. 1962. Distribution of the sheep population. In Barnard, A., eds. *The simple fleece* (Canberra: ANU Press).	27	Orthodox
Butlin, N. G. 1964. Growth in a trading world: The Australian economy, heavily disguised. *Australian Economic History Review*, 4, 2: 138 - 158.	21	Deductive
Butlin, N. G. 1962. The growth of rural capital. In Barnard, A., eds. *The simple fleece* (Canberra: ANU Press).	18	Orthodox
Butlin, N. G. 1964. *Investment in Australian economic development, 1861 - 1900* (London: Cambridge University Press).	477	Orthodox
Butlin, N. G. 1955. *Private capital formation in Australia, estimates 1861 - 1900* (Canberra: Australian National University).	166	Orthodox
Butlin, N. G. 1964. A problem in prices and quantities. *Economic Record*, 40, 90: 233-247.	15	Orthodox
Butlin, N. G. 1958. The shape of the Australian economy, 1861 - 1900. *Economic Record*, 34, 67: 10 - 29.	20	Orthodox
Butlin, N. G. 1959. Some structural features of Australian capital formation, 1861 - 1938/39. *Economic Record*, 35, 72: 389 - 415.	27	Orthodox
Butlin, N. G. 1964. A tangled web. *Economic Record*, 40, 90: 255-259.	5	Orthodox
Butlin, N. G. and Barnard, A. 1962. Pastoral finance and capital requirements. In Barnard, A., eds. *The simple fleece* (Canberra: ANU Press).	18	Orthodox
Butlin, N. G. and de Meel, H. 1954. *Public capital formation in Australia: Estimates 1860 - 1900* (Canberra: Australian National University).	226	Orthodox
Butlin, N. G. and Dowie, J. A. 1969. Estimates of Australian work force and employment, 1861 - 1961. *Australian Economic History Review*, 9, 2: 138 - 155.	18	Orthodox
Butlin, S. J. 1961. *Australia and New Zealand Bank: The Bank of Australasia and the Union Bank of Australia Limited, 1828-1951* (London: Longmans).	459	Orthodox
Butlin, S. J. 1953. *Foundations of the Australian monetary system 1788-1851* (Melbourne: Melbourne University Press).	727	Orthodox

Butlin, S. J. 1963. The South Australian devaluation of 1852. *Australian Economic History Review*, 3, 2: 156 - 186.	31	Analytical
Butlin, S. J. 1955. *War Economy, 1939 - 42* (Canberra: Australian War Memorial).	516	Orthodox
Cain, N. 1962. Companies and squatting in the Western Division of New South Wales. In Barnard, A., eds. *The simple fleece* (Canberra: ANU Press).	24	Analytical
Cain, N. 1961. Companies and squatting in the Western Division of New South Wales 1896 - 1905: It is not a black prospect; it is a black past. *Economic Record*, 37 78: 183 - 206.	22	Analytical
Cain, N. 1966. Financial reconstruction in Australia 1893-1900. *Business Archives and History*, 6, 2: 166.	18	Analytical
Cain, N. 1963. Pastoral expansion and crisis in New South Wales 1880 - 1893: The lending view. *Australian Economic Papers*, 2, 2: 180 - 198.	19	Analytical
Davidson, B. R. 1969. *Australia, wet or dry? The physical and economic limits to the expansion of irrigation* (Melbourne: Melbourne University Press).	264	Deductive
Dunsdorfs, E. 1956. *The Australian wheat-growing industry 1788 - 1948* (Melbourne: Melbourne University Press).	547	Deductive
Fogarty, J. 1968. The New South Wales pastoral industry in the 1820s. *Australian Economic History Review*, 8, 2: 110 - 122.	13	Orthodox
Fogarty, J. 1969. New South Wales wool prices in the 1820s: A note. *Australian Economic History Review*, 9, 1: 71 - 78.	7	Orthodox
Fogarty, J. 1966. The staple approach and the role of the government in Australian economic development: The wheat industry. *Australian Economic History Review*, 6, 1: 34 - 53.	20	Analytical
Forster, C., eds. 1970. *Australian economic development in the twentieth century* (Sydney: Australasian Publishing Company).	334	Orthodox
Forster, C. 1965. Australian unemployment, 1900 - 1940. *Economic Record*, 41, 95: 426 - 449.	25	Orthodox
Forster, C. 1953. Australian manufacturing and the war of 1914-18. *Economic Record*, 29, 57: 211 - 230.	20	Orthodox
Forster, C. 1958. The growth of the cement industry in the 1920s: A study in competition. *Economic Record*, 34, 68: 199 - 211.	13	Orthodox
Forster, C. 1964. *Industrial development in Australia 1920-1930* (Canberra: ANU Press).	256	Orthodox
Ginswick, J. 1959. Early Australian capital formation 1836-1850. A case study: The Australian Gaslight Company. *The Bulletin of the Business Archives Council of Australia*, 1, 6: 22 - 49.	28	Analytical
Ginswick, J. 1960. Early Australian capital formation 1836-1850. A case study: The Australian Gaslight Company (Part II). *The Bulletin of the Business Archives Council of Australia*, 1, 7: 43 - 49.	7	Analytical
Glynn, S. 1967. Government policy and agricultural development: Western Australia, 1900-1930. *Australian Economic History Review*, 7, 2: 115 - 141.	27	Orthodox
Haig, B. D. 1967. 1938/1939 national income estimates. *Australian Economic History Review*, 7, 2: 172 - 184.	15	Orthodox
Hainsworth, D. R. 1965. In search of a staple: The Sydney sandalwood trade 1804-1809. *Business Archives and History*, 5, 1: 1 - 20.	20	Analytical
Hainsworth, D. R. 1968. The New South Wales shipping interest 1800-1821: A study in colonial entrepreneurship. *Australian Economic History Review*, 8, 1: 15 - 28.	14	Analytical
Hall, A. R. 1963. *The London capital market and Australia 1870-1914* (Canberra: ANU Press).	221	Orthodox
Hall, A. R. 1963. Some long period effects of the kinked age distribution of the population of Australia, 1861 - 1961. *Economic*	10	Deductive

Record, 39, 85: 43 - 52.		
Hall, A. R. 1968. *The stock exchange of Melbourne and the Victorian economy, 1852-1900* (Canberra: ANU Press).	267	Orthodox
Hartwell, R. M. 1954. *The economic development of Van Diemen's Land, 1820-1850* (Melbourne: Melbourne University Press).	273	Orthodox
Hughes, H. 1964. *The Australian iron and steel industry 1848-1962* (Melbourne: Melbourne University Press).	213	Orthodox
Hughes, H. 1960. Colonial enterprise in iron smelting *The Bulletin of the Business Archives Council of Australia*, 1, 8: 33 - 37.	7	Analytical
Hughes, H. 1961. Colonial enterprise in iron smelting (continued). *The Bulletin of the Business Archives Council of Australia*, 1, 9: 11 - 23.	12	Analytical
McCarty, J. W. 1964. The staple approach in Australian economic history. *Business Archives and History*, 4, 1: 1 - 22.	23	Deductive
Patterson, G. D. 1968. *The tariff in the Australian colonies 1856 - 1900* (Melbourne: Cheshire).	174	Orthodox
Schedvin, C. B. 1970. *Australia and the Great Depression: A study of economic development and policy in the 1920s and 1930s* (Sydney: Sydney University Press).	419	Orthodox
Schedvin, C. B. 1969. The long and the short of depression origins. *Labour History*, 17, 1: 1 - 13.	14	Orthodox
Sinclair, W. A. 1956. *Economic recovery in Victoria 1894-1899* (Canberra: ANU).	128	Orthodox
Sinclair, W. A. 1955. Public capital formation in Australia: 1919-20 to 1929-30. *Economic Record*, 31, 61: 299 - 310.	12	Orthodox
Sinclair, W. A. 1955. The tariff and manufacturing employment in Victoria, 1860 - 1900. *Economic Record*, 31, 60: 100.	5	Orthodox
Steven, M. J. E. 1963. The changing pattern of commerce in New South Wales, 1810-1821. *Australian Economic History Review*, 3, 2: 139 - 155.	17	Analytical
Walsh, G. P. 1963. The geography of manufacturing in Sydney, 1788-1851. *Australian Economic History Review*, 3, 1: 20 - 51.	32	Analytical
Wheelwright, E. L. 1957. *Ownership and control of Australian companies: A study of 102 of the largest public companies incorporated in Australia* (Sydney: Law Book Co of Australasia).	433	Other

1971 - 1991

	Pages	*Primary methodology*
Abbott, G. J. 1971. *The pastoral age: A re-examination* (Melbourne: Macmillan).	221	Analytical
Abbott, G. J. 1972. Was labour scarce in the 1830s? A comment. *Australian Economic History Review*, 12, 2: 179 - 184.	6	Orthodox
Alford, K. 1984. *Production or reproduction?: An economic history of women in Australia, 1788-1850* (Melbourne: Oxford University Press).	264	Analytical
Bambrick, S. 1973. Australian price levels 1890-1970. *Australian Economic History Review*, 13, 1: 57 - 61.	15	Orthodox
Bambrick, S. 1969. The 'C' Series: Its sins of commission and omission. *Australian Economic History Review*, 9, 1: 53 - 63.	11	Orthodox
Bambrick, S. 1974. Federal government intervention in the price mechanism 1939-1949. *Australian Economic History Review*, 14, 1: 1 - 19.	19	Orthodox
Bambrick, S. 1968. Indexes of Australian import prices, 1900 to 1927-28. *Australian Economic History Review*, 8, 1: 62 - 70.	8	Orthodox

Barnard, A. 1971. Wool brokers and the marketing pattern, 1914-20. *Australian Economic History Review*, 11, 1: 1.	20	Analytical
Barnard, A. and Butlin, N. G. 1981. Australian public and private capital formation, 1901–75. *Economic Record*, 57, 4: 354 - 367.	14	Orthodox
Barnard, A., Butlin, N. G. and Pincus, J. J. 1977. Public and private sector employment in Australia, 1901–1974. *The Australian Economic Review*, 10, 1: 43 - 52.	10	Orthodox
Bate, W. 1970. The urban sprinkle: Country towns and Australian regional history. *Australian Economic History Review*, 10, 2: 204 - 218.	14	NA
Beever, E. A. 1972. *The Launceston Bank for Savings, 1835 - 1970* (Melbourne: Melbourne University Press).	231	Analytical
Beever, E. A. 1979. The pre-gold economic boom in Australia 1843-1851. *Australian Economic History Review*, 19, 1: 1 - 25.	25	Orthodox
Blainey, G. 1980. *A land half won* (South Melbourne: Macmillan).	388	Analytical
Boehm, E. A. 1973. Australia's economic depression of the 1930s. *Economic Record*, 49, 128: 606 - 623.	18	Orthodox
Boehm, E. A. 1975. Economic development and fluctuation in Australia in the 1920s: A reply. *Economic Record*, 51, 135: 414 - 420.	7	Orthodox
Boehm, E. A. 1971. *Twentieth century economic development in Australia* (Melbourne: Longman).	432	Orthodox
Boot, H. M. 1988. Debts, drought, and foreclosure: Wool-producers in Queensland and New South Wales, 1870-1905. *Australian Economic History Review*, 28, 2: 33 - 52.	20	Orthodox
Buckley, K. D. and Wheelwright, E. L. 1988. *No paradise for workers: Capitalism and the common people in Australia, 1788-1914* (Melbourne: Oxford University Press).	296	Analytical
Butlin, N. G. 1986. Contours of the Australian economy 1788-1860. *Australian Economic History Review*, 26, 2: 96 -	30	Orthodox
Butlin, N. G. 1983. *Our original aggression* (Sydney: George Allen & Unwin).	186	Qual-deductive
Butlin, N. G. 1989. The palaeoeconomic history of aboriginal migration. *Australian Economic History Review*, 29, 2: 3 - 56.	53	Qual-deductive
Butlin, N. G. 1983. Yo, ho, ho and how many bottles of rum? *Australian Economic History Review*, 23, 1: 1 - 27.	27	Orthodox
Butlin, N. G., Pincus, J. J. and Barnard, A. 1982. *Government and capitalism: Public and private choice in twentieth century Australia* (Sydney: George Allen & Unwin).	22	Orthodox
Butlin, N. G. and Sinclair, W. A. 1986. Australian gross domestic product 1788-1860: Estimates, sources and methods. *Australian Economic History Review*, 26, 2: 126 - 47.	369	Orthodox
Butlin, S. J. 1977. Australian bank branches 1817-1914. *Australian Economic History Review*, 17, 2: 166 - 169.	4	Orthodox
Butlin, S. J. 1983. Australian central banking, 1945-59. *Australian Economic History Review*, 23, 2: 95 - 192.	98	Analytical
Butlin, S. J. 1986. *The Australian monetary system, 1851 to 1914* (Sydney: JF Butlin).	681	Orthodox
Butlin, S. J. 1975. Tasmanian bank deposits, 1865-1902. *Australian Economic History Review*, 15, 1: 45 - 52.	7	Orthodox
Butlin, S. J., Hall, A. R. and White, R. 1971. *Australian banking and monetary statistics, 1817-1945* (Sydney: Reserve Bank of Australia).	817	Orthodox
Butlin, S. J. and Schedvin, C. B. 1977. *The War economy: 1942 - 1945* (Canberra: Australian War Memorial).	681	Orthodox
Cain, N. 1973. Political economy and the tariff: Australia in the 1920s. *Australian Economic Papers*, 12, 20: 1 - 20.	20	Analytical

Cain, N. 1983. Recovery policy in Australia 1930-33: Certain native wisdom. *Australian Economic History Review*, 23, 2: 193 - 218.	26	Analytical
Cain, N. 1974. The economists and Australian population strategy in the twenties. *The Australian Journal of Politics and History*, 20, 3: 346 - 359.	14	Analytical
Cain, N. and Glynn, S. 1985. Imperial relations under strain: The British-Australian debt contretemps of 1933. *Australian Economic History Review*, 25, 1: 39 - 58.	20	Analytical
Carter, M. and Maddock, R. 1987. Leisure and Australian wellbeing 1911-1981. *Australian Economic History Review*, 27, 1: 30 - 44.	14	Quant-deductive
Daly, M. T. 1970. The development of the urban pattern of Newcastle. *Australian Economic History Review*, 10, 2: 190 - 204.	14	Analytical
Davidson, B. R. 1982. A benefit cost analysis of the New South Wales railway system. *Australian Economic History Review*, 22, 2: 127.	24	Quant-deductive
Davidson, B. R. 1981. *European farming in Australia: An economic history of Australian farming* (Amsterdam, New York: Elsevier Scientific Publishing Co.).	437	NA
Davies, M. 1977. Bullocks and rail -- The South Australian Mining Association 1845-1870. *Australian Economic History Review*, 17, 2: 146 - 160.	15	Orthodox
Davies, M. 1983. Copper and credit: Commission agents and the South Australian Mining Association 1845-1877. *Australian Economic History Review*, 23, 1: 58 - 77.	20	Orthodox
Davison, G. 1970. Public utilities and the expansion of Melbourne in the 1880s. *Australian Economic History Review*, 10, 2: 168 - 188.	21	Analytical
Davison, G. 1978. *The rise and fall of Marvellous Melbourne* (Melbourne: Melbourne University Press).	382	Analytical
Dingle, A. E. 1980. 'The truly magnificent thirst': An historical survey of Australian drinking habits. *Historical Studies*, 19, 75: 227-249.	77	Analytical
Dingle, A. E. and Merrett, D. T., eds. 1985. *Argentina and Australia: Essays in comparative economic development* (Clayton: Economic History Society of Australia and New Zealand).	15	Orthodox
Dingle, A. E. and Merrett, D. T. 1972. Home owners and tenants in Melbourne 1891-1911. *Australian Economic History Review*, 12, 1: 21 - 35.	24	Orthodox
Dingle, A. E. and Merrett, D. T. 1977. Landlords in suburban Melbourne, 1891-1911. *Australian Economic History Review*, 17, 1: 1 - 24.	23	Orthodox
Duncan, T. and Fogarty, J. 1984. *Australia and Argentina: On parallel paths* (Melbourne: Melbourne University Press).	203	Analytical
Dyster, B. and Meredith, D. 1990. *Australia in the international economy in the twentieth century* (Melbourne: Cambridge University Press).	362	Orthodox
Fogarty, J. P. 1981. The comparative method and the nineteenth century regions of recent settlement. *Historical Studies*, 19, 76: 412-429.	18	Qual-deductive
Forster, C. 1974. Aspects of Australian fertility, 1861-1901. *Australian Economic History Review*, 14, 2: 105 - 122.	18	Quant-deductive
Forster, C. 1985. An economic consequence of Mr Justice Higgins. *Australian Economic History Review*, 25, 2: 95 - 111.	17	Orthodox

Forster, C. 1980. Indexation and the Commonwealth basic wage, 1907-22. *Australian Economic History Review*, 20, 2: 99.	20	Analytical
Forster, C. 1985. Unemployment and minimum wages in Australia, 1900–1930. *The Journal of Economic History*, 45, 02: 383-388.	6	Orthodox
Forster, C. 1990. Wages and wage policy: Australia in the Depression, 1929-1934. *Australian Economic History Review*, 30, 1: 23 - 42.	20	Orthodox
Forster, C. and Harris, P. 1983. A note on engineering wages in Melbourne 1892-1929. *Australian Economic History Review*, 23, 1: 50 - 58.	8	Orthodox
Frost, L. 1986. A reinterpretation of Victoria's railway construction boom of the 1880s. *Australian Economic History Review*, 26, 1: 40 - 55.	16	Orthodox
Gregory, R. G. and Butlin, N. G., eds. 1988. *Recovery from the Depression: Australia and the world economy in the 1930s* (Cambridge: Cambridge University Press).	17/185	Valentine's chapter; Quant-deductive. Chapters by M Butlin, Davidson, Forster, Gregory, McLean, Pincus, Snooks; Orthodox.
Haig, B. D. 1978. Australian economic growth and structural change in the 1950s: An international comparison. *Australian Economic History Review*, 18, 1: 29 - 47.	16	Quant-deductive
Haig, B. D. 1975. Manufacturing output and productivity, 1910-1948/9. *Australian Economic History Review*, 15, 2: 136 - 1961.	19	Orthodox
Haig, B. D. and Cain, N. 1983. Industrialization and productivity: Australian manufacturing in the 1920s and 1950s. *Explorations in Economic History*, 20, 2: 183 - 198.	26	Orthodox
Jackson, R. V. 1977. *Australian economic development in the nineteenth century* (Canberra: ANU Press).	175	Orthodox
Jackson, R. V. 1974. House building and the age structure of population in New South Wales, 1861-1900. *Australian Economic History Review*, 14, 2: 143 - 160.	17	Orthodox
Jackson, R. V. 1970. Owner-occupation of houses in Sydney, 1871-1891. *Australian Economic History Review*, 10, 2: 138 - 154.	17	Orthodox
Jackson, R. V. 1985. Short-run interaction of public and private sectors in Australia, 1861-1890. *Australian Economic History Review*, 25, 1: 59 - 75.	17	Quant-deductive
Keating, M. 1967. The Australian workforce and employment 1910 - 1960. *Australian Economic History Review*, 7, 2: 150 - 173.	24	Orthodox
Keating, M. 1971. A comment on the Butlin-Dowie Australian work force and employment estimates. *Australian Economic History Review*, 11, 1: 59 - 62.	4	Orthodox
Keating, M. 1983. Relative wages and the changing industrial distribution of employment in Australia. *Economic Record*, 59, 167: 384 - 398.	14	Orthodox
Keating, M. 1973. *The Australian workforce, 1910-11 to 1960-61* (Canberra: ANU Press).	392	Orthodox
Kelly, M. J. 1970. Eight acres: Estate subdivision and the building process, Paddington, 1875-1890. *Australian Economic History Review*, 10, 2: 155 - 1969.	14	Analytical
Lougheed, A. L. 1987. The cyanide process and gold extraction in Australia and New Zealand 1888-1913. *Australian Economic History Review*, 27, 1: 44 - 60.	17	Orthodox
Maddock, R. and McLean, I. W., eds. 1987. *The Australian*	372	Orthodox

economy in the long run (Cambridge Cambridge University Press).		
Maddock, R. and McLean, I. W. 1984. Supply-side shocks: The case of Australian gold. *The Journal of Economic History*, 44, 4: 1047 - 1067.	21	Quant-deductive
Martina, A. 1977. An aspect of the application of economic growth accounting in the analysis of Australian economic history. *Australian Economic History Review*, 17, 1: 58 - 63.	6	Quant-deductive
McCarty, J. W. 1973. Australia as a region of recent settlement in the nineteenth century. *Australian Economic History Review*, 13, 2: 148 - 167.	20	Qual-deductive
McCarty, J. W. 1970. Australian capital cities in the 19th century. *Australian Economic History Review*, 10, 2: 107 - 137.	31	Qual-deductive
McLean, I. W. 1973. The adoption of harvest machinery in Victoria in the late 19th century. *Australian Economic History Review*, 13, 1: 41 - 56.	16	Orthodox
McLean, I. W. 1981. The analysis of agricultural productivity: Alternative views and Victorian evidence. *Australian Economic History Review*, 21, 1: 6 - 28.	23	Quant-deductive
McLean, I. W. 1968. The Australian balance of payments on current account 1901 to 1964-65. *Australian Economic Papers*, 7, 10: 77 - 90.	15	Quant-deductive
McLean, I. W. 1973. Growth and technological change in agriculture: Victoria 1870-1910. *Economic Record*, 49, 128: 560.	10	Orthodox
McLean, I. W., Molloy, S. and Lockett, P. 1982. The rural workforce in Australia 1871-1911. *Australian Economic History Review*, 22, 2: 172 - 181.	10	Orthodox
McLean, I. W. and Pincus, J. J. 1983. Did Australian living standards stagnate between 1890 and 1940? *The Journal of Economic History*, 43, 1: 193 - 202.	15	Orthodox
McLean, I. W. and Richardson, S. 1986. More or less equal? Australian income distribution in 1933 and 1980. *Economic Record*, 62, 176: 67 - 81.	14	Orthodox
Merrett, D. T. 1989. Australian banking practice and the crisis of 1893. *Australian Economic History Review*, 29, 1: 60 - 85.	26	Orthodox
Merrett, D. T. 1978. Australian capital cities in the twentieth century. In McCarty, J. W. and Schedvin, C. B., eds. *Australian capital cities* (Sydney: Sydney University Press).	28	Orthodox
Merrett, D. T. 1977. Economic growth and well-being, Melbourne 1870-1914: A comment. *Economic Record*, 53, 142: 262.	27	Orthodox
Merrett, D. T. 1979. The Victorian Licensing Court 1906-1968: A study of role and impact. *Australian Economic History Review*, 19, 2: 123 - 150.	7	Orthodox
Nicholas, S., eds. 1988. *Convict workers: Reinterpreting Australia's past* (Melbourne: Cambridge University Press).	145/51	Chapters by Nicholas and Shergold, and Oxley; Quant-deductive. Chapters by Dyster, Meredith, Perkins; Analytical.
Pope, D. 1986. Australian capital inflow, sectional prices and the terms of trade: 1870-1939. *Australian Economic Papers*, 25, 46: 67-82.	16	Quant-deductive
Pope, D. 1981. Contours of Australian immigration, 1901 - 30. *Australian Economic History Review*, 21, 1: 29 - 53.	24	Orthodox
Pope, D. 1982. Price expectations and the Australian price level:	11	Quant-deductive

1901–30. *Economic Record*, 58, 4: 328-338.		
Pope, D. 1976. The push-pull model of Australian migration. *Australian Economic History Review*, 16, 2: 144 - 152.	9	Quant-deductive
Pope, D. 1984. Rostow's Kondratieff cycle in Australia. *The Journal of Economic History*, 44, 3: 729-753.	25	Quant-deductive
Pope, D. 1971. Viticulture and phylloxera in North-East Victoria. *Australian Economic History Review*, 10, 1: 21 - 37.	18	Orthodox
Pope, D. 1982. Wage regulation and unemployment in Australia: 1900-1930. *Australian Economic History Review*, 22, 2: 103 - 126.	24	Quant-deductive
Richards, E. S. 1975. The genesis of secondary industry in the South Australian economy. *Australian Economic History Review*, 15, 2: 107 - 135.	29	Analytical
Robertson, P. L. 1986. Official policy on American direct investment in Australia, 1945-1952. *Australian Economic History Review*, 26, 2: 159 - 181.	23	Analytical
Schedvin, C. B. 1973. A century of money in Australia. *Economic Record*, 49, 128: 588.	19	Qual-deductive
Schedvin, C. B. 1984. Environment, economy and Australian biology, 1890-1939. *Historical Studies*, 21, 82: 11 - 28.	2	Orthodox
Schedvin, C. B. 1971. Monetary stability and the demand for money in Australia between the Wars. *Australian Economic History Review*, 11, 2: 167 - 178.	20	Orthodox
Schedvin, C. B. 1972. Mr. Reece on money and prices: A reply. *Australian Economic History Review*, 12, 2: 177 - 178.	8	Orthodox
Schedvin, C. B. 1970. Rabbits and industrial development: Lysaght Brothers & Co. Pty. Ltd, 1884-1929. *Australian Economic History Review*, 10, 1: 27 - 46.	12	Quant-deductive
Sheridan, T. 1982. Aspects of decision making in a monopoly: BHP and the 1945 steel strike. *Australian Economic History Review*, 22, 1: 1 - 27.	27	Analytical
Shlomowitz, R. 1982. The profitability of indentured Melanesian labour in Queensland. *Australian Economic History Review*, 22, 1: 49 - 67.	19	Quant-deductive
Shlomowitz, R. 1979. The search for institutional equilibrium in Queensland's sugar industry 1884-1913. *Australian Economic History Review*, 19, 2: 91 - 122.	32	Quant-deductive
Sinclair, W. A. 1975. Economic development and fluctuation in Australia in the 1920s. *Economic Record*, 51, 135: 409 - 413.	5	Orthodox
Sinclair, W. A. 1977. Economic growth and well-being: A comment on a comment. *Economic Record*, 53, 2: 269-271.	21	Orthodox
Sinclair, W. A. 1975. Economic growth and well-being: Melbourne 1870-1914. *Economic Record*, 51, 134: 153 - 173.	3	Orthodox
Sinclair, W. A. 1976. *The process of economic development in Australia* (Melbourne: Cheshire).	266	Quant-deductive
Sinclair, W. A. 1971. The tariff and economic growth in pre-Federation Victoria. *Economic Record*, 47, 1: 77-93.	16	Orthodox
Sinclair, W. A. 1971. Was labour scarce in the 1830s? *Australian Economic History Review*, 11, 2: 115 - 132.	18	Orthodox
Sinclair, W. A. 1972. Was labour scarce in the 1830s?: A Reply. *Australian Economic History Review*, 12, 2: 185 - 188.	4	Orthodox
Sinclair, W. A. 1982. Women and economic change in Melbourne 1871–1921. *Historical Studies*, 20, 79: 278 - 291.	14	Orthodox
Sinclair, W. A. 1981. Women at work in Melbourne and Adelaide since 1871. *Economic Record*, 57, 4: 344 - 353.	10	Quant-deductive
Snooks, G. 1979. The arithmetic of regional growth: Western Australia 1912/13 to 1957/8. *Australian Economic History Review*, 19, 1: 63 - 74.	12	Orthodox

Snooks, G. 1974. Constraints on the growth of the firm: Hume Enterprises 1910 - 40. *Australian Economic History Review*, 14, 1: 37 - 57.	21	Orthodox
Snooks, G. 1974. *Depression and recovery in Western Australia 1928/29 - 1938/39* (Nedlands: University of Western Australia Press).	192	Orthodox
Snooks, G. 1973. Depression and recovery in Western Australia, 1928-29 to 1938-39: A deviation from the norm. *Economic Record*, 49, 127: 420.	25	Orthodox
Snooks, G. 1973. Innovation and the growth of the firm: Hume Enterprises, 1910 - 1940. *Australian Economic History Review*, 13, 1: 16 - 40.	20	Orthodox
Snooks, G. 1972. Regional estimates of gross domestic product and capital formation: Western Australia, 1923 - 1938-39. *Economic Record*, 48, 124: 536.	18	Orthodox
Statham, P. 1990. A new look at the New South Wales Corps, 1790-1810. *Australian Economic History Review*, 30, 1: 43 - 63.	21	Orthodox
Statham, P. 1984. The role of the Commissariat in early West Australian economic development. *Australian Economic History Review*, 24, 1: 20 - 33.	14	Qual-deductive
Tsokhas, K. 1984. 'A touch of Midas': The rise of Western Mining Corporation, 1945-1975. *Australian Economic History Review*, 24, 2: 132 - 140.	18	Analytical
Valentine, T. J. 1980. A model of the Australian labour market in the interwar period. *Australian Economic History Review*, 20, 1: 46 - 63.	18	Quant-deductive
Vamplew, W. 1987. *Australians, historical statistics* (Broadway: Fairfax, Syme and Weldon Associates).	470	Orthodox
Wells, A. 1989. *Constructing capitalism: An economic history of eastern Australia, 1788-1901* (Sydney: Allen & Unwin).	198	Qual-deductive
Whitwell, G. 1986. *The Treasury line* (Sydney: Allen & Unwin).	308	Analytical
Withers, G. 1979. Economic influences upon marriage behaviour: Australia, 1954-1984. *Economic Record*, 55, 149: 118.	19	Quant-deductive
Withers, G. 1977. Immigration and economic fluctuations: an application to late nineteenth-century Australia. *Australian Economic History Review*, 17, 2: 131 - 149.	10	Quant-deductive
Withers, G. and Pope, D. 1985. Immigration and unemployment. *Economic Record*, 61, 2: 554-564.	9	Quant-deductive
Wotherspoon, G. 1978. Savings banks and social policy in New South Wales 1832-1871. *Australian Economic History Review*, 18, 2: 141 - 163.	23	Analytical

Appendix E: Details of oral history interviews

Oral history participants

	Where	*When*	*Primary university affiliation*
Pat Troy	Canberra	February 2015	ANU
Bob Gregory	Canberra	February 2015	ANU
Selwyn Cornish	Canberra	February 2015	ANU
David Merrett	Melbourne	March 2015	Monash/Melbourne
Stuart Macintyre	Melbourne	March 2015	Melbourne
Gus Sinclair	Melbourne	March 2015	Monash/Melbourne
Geoffrey Blainey	Melbourne	March 2015	Melbourne
Matthew Butlin	Melbourne	March 2015	n.a.
Alan Hall	Sydney	June 2015	ANU
Ian McLean	Adelaide	July 2015	Adelaide
Jonathan Pincus	Adelaide	July 2015	Flinders
Boris Schedvin	Melbourne	July 2015	Monash/Melbourne
Tony Dingle	Melbourne	July 2015	Monash
Graeme Davison	Melbourne	July 2015	Monash/Melbourne
Rod Maddock	Melbourne	December 2015	ANU
Bob Jackson	Canberra	March 2016	ANU
Peter Shergold	Sydney	March 2016	UNSW
Pamela Statham	Perth	April 2016	UWA
Stephen Nicholas	Sydney	April 2016	UNSW
Diane Hutchinson	Sydney	April 2016	Sydney
Mac Boot	Canberra	April 2016	ANU
Greg Whitwell	Sydney	March 2017	Melbourne

Common schedule of oral history questions

- We might just start with the basics, can you tell me your story in your own words. Where did you grow up, let's start there.

- Make sure you have:

    - Degrees, dates, locations, supervisors

    - University appointments, dates, departments, locations

    - Any non-university appointments

    - Any overseas appointments

PhD?

- Where, when? Supervisor, topic, other PhD students, other faculty? What would you say was the biggest influence on you at that time?

Their main university

- When were you there? Were you in the EH department? What was it like? Who was in the department at that stage? Big personalities, atmosphere of the place.

- Interactions within the department? Who did you associate most with? What forms of communication were there? Seminars, joint project?

- To what degree was the dept doing similar stuff? Were there any common aims or approaches?

- What about the interactions with other disciplines? Ie economics or history? Was there a joint seminar, did you collaborate on anything? Were you in the same building?

Other university appointments?

- Economics or EH depts? Connections to/interactions with other disciplines, and why. Experiences of EH at other places.

Connections to the community elsewhere

- How much contact did you have with economic historians elsewhere? What form was this contact in?

- Conferences? The journal? The Society?

- How much of a sense of community with other economic historians do you think there was?

- Who were the key economic historians not at the ANU that you were aware of? Did they stick out for research, or for other roles in the community?

- Do you think there were differences between what was happening at different locations? Was the approach at the ANU different? How about Melbourne? Sydney?

Other collaborations and their approach

- Who have you chosen to collaborate with? Why? Is it a division of labour thing? People involved in the same theme thing? People at the same university etc?

- Edited works: what sort of activities were involved in the volume? Did you try to develop a common approach amongst chapters? Why did you choose certain chapter authors?

- I am really interested in acknowledgment for how people show influence or collaboration. What sort of people would you send work to for comment prior to publication?

- How would you classify your approach to economics/economic history? What factors stand out in shaping this approach?

- Do you see economic history as more a part of economics or of history?

Economic history in Australia

- How would you classify the Australian approach to economic history? Were there locational differences in the approach? Or differences due to other factors (phd supervision, where they were located etc)?

- Any elements of the approach that were imported from overseas?

- Do you see the approach as cohesive at this time? Who were 'inside' and 'outside' the main approach? Did this change over time?

- Obviously Noel was important to the field. What do you think Butlin's main role or legacy was? Was it positive or negative?

- What do you think the link between economic history and economics/history should be?

- What do you think the state of the field is at the moment? Where do you see it going moving forward?

Appendix F: Citation similarity scores

Citation similarity scores are based on *bibliographic coupling*, which deems two texts similar if they cited common works (including their own).

Main edited works

Abbott, G. J. and Nairn, N. B., eds. 1969. *Economic growth of Australia 1788-1821* (Melbourne: Melbourne University Press).

	Abbott, GJ	*Fieldhouse, DK*	*Fletcher, BH*	*Hainsworth, DR*	*Hartwell, RM*	*Joyce, RB*	*Nairn, NB*	*Rimmer, WG*	*Robinson, KW*	*Shaw, AGL*	*Steven, MJE*	*Walsh, GP*
Abbott, GJ	1.000	-0.202	0.099	0.283	-0.128	0.057	0.211	0.051	-0.022	0.053	0.206	0.064
Fieldhouse, DK	-0.202	1.000	-0.105	-0.093	-0.165	-0.001	-0.011	-0.085	-0.160	-0.085	-0.130	-0.049
Fletcher, BH	0.099	-0.105	1.000	0.103	-0.063	0.208	0.034	-0.033	0.468	-0.033	-0.053	-0.019
Hainsworth, DR	0.283	-0.093	0.103	1.000	-0.056	0.041	0.103	-0.029	-0.055	0.196	-0.043	-0.017
Hartwell, RM	-0.128	-0.165	-0.063	-0.056	1.000	-0.097	-0.069	-0.042	-0.097	0.109	-0.089	-0.029
Joyce, RB	0.057	-0.001	0.208	0.041	-0.097	1.000	0.107	-0.050	0.129	-0.050	-0.088	0.055
Nairn, NB	0.211	-0.011	0.034	0.103	-0.069	0.107	1.000	-0.013	-0.036	0.020	-0.014	0.254
Rimmer, WG	0.051	-0.085	-0.033	-0.029	-0.042	-0.050	-0.013	1.000	-0.050	-0.027	0.161	-0.015
Robinson, KW	-0.022	-0.160	0.468	-0.055	-0.097	0.129	-0.036	-0.050	1.000	-0.050	-0.092	-0.029
Shaw, AGL	0.053	-0.085	-0.033	0.196	0.109	-0.050	0.020	-0.027	-0.050	1.000	-0.049	-0.015
Steven, MJE	0.206	-0.130	-0.053	-0.043	-0.089	-0.088	-0.014	0.161	-0.092	-0.049	1.000	-0.028
Walsh, GP	0.064	-0.049	-0.019	-0.017	-0.029	0.055	0.254	-0.015	-0.029	-0.015	-0.028	1.000

Forster, C., eds. 1970. *Australian economic development in the twentieth century* (Sydney: Australasian Publishing Company).

	Butlin, NG	*Cain, N*	*Dowie, JA*	*Forster, C*	*Hughes, H*	*Sinclair, WA*
Butlin, NG	1.000	-0.050	0.027	-0.035	-0.056	-0.015
Cain, N	-0.050	1.000	0.183	0.050	-0.061	0.427
Dowie, JA	0.027	0.183	1.000	-0.054	-0.090	0.145
Forster, C	-0.035	0.050	-0.054	1.000	-0.069	0.180
Hughes, H	-0.056	-0.061	-0.090	-0.069	1.000	0.001
Sinclair, WA	-0.015	0.427	0.145	0.180	0.001	1.000

Maddock, R. and McLean, I. W., eds. 1987. *The Australian economy in the long run* (Cambridge: Cambridge University Press).

	Anderson, K	*Butlin, MW*	*Carter, M*	*Freebairn, JW*	*Maddock, R*	*McLean, IW*	*Pagan, A*	*Pincus, JJ*	*Pope, D*	*Valentine, TJ*	*Withers, GA*
Anderson, K	1.000	0.182	0.162	0.142	0.289	0.286	-0.026	0.297	0.293	0.023	0.070
Butlin, MW	0.182	1.000	0.049	0.199	0.282	0.207	0.211	0.197	0.277	0.153	0.100
Carter, M	0.162	0.049	1.000	0.035	0.230	0.247	-0.061	0.264	0.095	-0.025	0.019
Freebairn, JW	0.142	0.199	0.035	1.000	0.294	0.209	0.246	0.146	0.263	0.093	0.001
Maddock, R	0.289	0.282	0.230	0.294	1.000	0.777	-0.009	0.457	0.461	0.379	0.209
McLean, IW	0.286	0.207	0.247	0.209	0.777	1.000	-0.013	0.503	0.339	0.207	0.292
Pagan, A	-0.026	0.211	-0.061	0.246	-0.009	-0.013	1.000	-0.028	-0.033	0.011	-0.011
Pincus, JJ	0.297	0.197	0.264	0.146	0.457	0.503	-0.028	1.000	0.205	-0.010	0.179
Pope, D	0.293	0.277	0.095	0.263	0.461	0.339	-0.033	0.205	1.000	0.168	0.095
Valentine, TJ	0.023	0.153	-0.025	0.093	0.379	0.207	0.011	-0.010	0.168	1.000	-0.002
Withers, GA	0.070	0.100	0.019	0.001	0.209	0.292	-0.011	0.179	0.095	-0.002	1.000

Gregory, R. G. and Butlin, N. G., eds. 1988. *Recovery from the Depression: Australia and the world economy in the 1930s* (Cambridge: Cambridge University Press).

	Boyce, PM	*Butlin, MW*	*Davidson, BR*	*Forster, C*	*Gregory, RG*	*McLean, IW*	*Pincus, JJ*	*Snooks, GD*	*Valentine, TJ*
Boyce, PM	1.000	1.000	0.491	0.067	0.468	0.154	0.474	0.283	0.329
Butlin, MW	1.000	1.000	0.491	0.072	0.477	0.154	0.477	0.283	0.341
Davidson, BR	0.491	0.491	1.000	0.343	0.429	0.272	0.674	0.255	0.156
Forster, C	0.067	0.072	0.343	1.000	0.227	-0.038	0.075	0.078	0.055
Gregory, RG	0.468	0.477	0.429	0.227	1.000	0.111	0.439	0.202	0.238
McLean, IW	0.154	0.154	0.272	-0.038	0.111	1.000	0.285	0.035	0.012
Pincus, JJ	0.474	0.477	0.674	0.075	0.439	0.285	1.000	0.332	0.348
Snooks, GD	0.283	0.283	0.255	0.078	0.202	0.035	0.332	1.000	0.372
Valentine, TJ	0.329	0.341	0.156	0.055	0.238	0.012	0.348	0.372	1.000

Nicholas, S., eds. 1988. *Convict workers: Reinterpreting Australia's past* (Melbourne: Cambridge University Press).

	Dyster, B	*Meredith, D*	*Nicholas, S*	*Oxley, D*	*Perkins, JA*	*Shergold, P*
Dyster, B	1.000	0.343	-0.009	0.163	-0.031	0.035
Meredith, D	0.343	1.000	-0.025	-0.020	-0.009	-0.042
Nicholas, S	-0.009	-0.025	1.000	0.179	-0.087	0.737
Oxley, D	0.163	-0.020	0.179	1.000	-0.048	0.290
Perkins, JA	-0.031	-0.009	-0.087	-0.048	1.000	-0.060
Shergold, P	0.035	-0.042	0.737	0.290	-0.060	1.000

1950 – 1970 corpus

	GA	HA	JB	AB	FB	EB	ABi	GB	EBo	KBu
GA	1.00	0.04	0.10	0.07	0.04	0.11	0.04	0.66	0.16	-0.01
HA	0.04	1.00	0.67	0.24	0.00	0.18	-0.01	0.17	0.47	0.00
JB	0.10	0.67	1.00	0.23	0.00	0.51	0.01	0.26	0.68	-0.01
AB	0.07	0.24	0.23	1.00	-0.01	0.18	0.03	0.06	0.25	-0.02
FB	0.04	0.00	0.00	-0.01	1.00	0.00	0.42	0.09	0.00	0.00
EB	0.11	0.18	0.51	0.18	0.00	1.00	0.01	0.34	0.85	0.00
ABi	0.04	-0.01	0.01	0.03	0.42	0.01	1.00	0.06	0.01	-0.01
GB	0.66	0.17	0.26	0.06	0.09	0.34	0.06	1.00	0.34	-0.02
EBo	0.16	0.47	0.68	0.25	0.00	0.85	0.01	0.34	1.00	-0.01
KBu	-0.01	0.00	-0.01	-0.02	0.00	0.00	-0.01	-0.02	-0.01	1.00
NB	0.13	0.77	0.68	0.26	0.00	0.53	0.02	0.20	0.78	-0.01
SBu	0.06	0.18	0.20	0.10	0.00	0.07	0.02	0.08	0.11	-0.01
NC	0.08	0.18	0.42	0.11	0.00	0.64	-0.01	0.20	0.66	-0.01
BD	-0.02	-0.01	-0.02	-0.04	-0.01	-0.01	-0.02	-0.05	-0.01	-0.01
JD	0.02	0.00	0.11	0.02	0.00	0.29	-0.01	0.07	0.26	-0.01
ED	0.02	0.40	0.29	0.09	-0.01	0.08	0.02	0.07	0.20	-0.01
DF	0.00	-0.01	-0.02	-0.04	0.00	-0.01	-0.02	-0.02	-0.01	-0.01
BF	0.12	0.00	0.05	0.05	0.00	0.02	0.07	0.08	0.00	0.00
JF	0.44	0.04	0.06	0.01	0.00	0.15	-0.01	0.35	0.12	0.00
CFo	0.07	0.20	0.30	0.05	-0.01	0.40	-0.03	0.10	0.45	-0.02
JGin	0.30	0.00	0.06	0.19	0.00	0.02	0.07	0.11	0.13	0.00
SG	0.05	0.00	0.24	0.06	0.00	0.59	0.01	0.25	0.50	-0.01
BH	0.02	0.00	0.13	0.03	0.00	0.32	-0.01	0.09	0.29	0.00
DH	0.19	0.00	0.01	0.08	0.00	0.00	0.06	0.08	0.07	-0.01
AH	0.09	0.49	0.53	0.22	-0.01	0.35	0.00	0.15	0.52	-0.01
RH	0.15	0.00	0.06	0.12	-0.01	0.00	0.07	0.04	0.07	0.27
HHu	0.02	0.09	0.05	0.02	-0.01	0.01	-0.01	0.00	0.05	-0.01
RJo	0.21	0.00	0.01	-0.01	0.00	0.03	0.00	0.15	-0.01	-0.01
JMcC	0.38	0.35	0.47	0.15	0.36	0.59	0.14	0.41	0.64	-0.01
NN	0.18	0.00	0.02	0.03	0.06	0.01	0.09	0.07	0.05	-0.01
GPa	0.07	0.82	0.72	0.25	0.00	0.54	0.00	0.26	0.75	-0.01
WR	0.05	0.00	-0.01	0.00	0.00	0.01	-0.01	0.02	0.00	0.00
KR	0.07	0.11	0.13	0.07	0.00	0.03	-0.01	0.06	0.05	-0.01
CBS	0.05	0.01	0.23	0.05	0.00	0.49	0.03	0.18	0.45	-0.01
AS	0.08	0.00	0.00	0.04	0.00	0.00	0.02	0.03	0.05	0.29
WS	0.07	0.30	0.55	0.14	0.00	0.74	0.00	0.28	0.76	-0.01
MS	0.23	0.15	0.11	0.11	0.00	0.05	0.09	0.09	0.14	-0.01
GW	0.14	0.33	0.24	0.14	0.00	0.09	0.06	0.14	0.22	-0.01

TW	-0.01	-0.01	0.00	-0.03	0.00	-0.01	-0.02	-0.04	0.01	-0.01
H deM	0.00	0.00	0.13	-0.01	0.00	0.02	0.00	-0.01	0.11	0.00

	NB	**SBu**	**NC**	**BD**	**JD**	**ED**	**DF**	**BF**	**JF**	**CFo**
GA	0.13	0.06	0.08	-0.02	0.02	0.02	0.00	0.12	0.44	0.07
HA	0.77	0.18	0.18	-0.01	0.00	0.40	-0.01	0.00	0.04	0.20
JB	0.68	0.20	0.42	-0.02	0.11	0.29	-0.02	0.05	0.06	0.30
AB	0.26	0.10	0.11	-0.04	0.02	0.09	-0.04	0.05	0.01	0.05
FB	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01
EB	0.53	0.07	0.64	-0.01	0.29	0.08	-0.01	0.02	0.15	0.40
ABi	0.02	0.02	-0.01	-0.02	-0.01	0.02	-0.02	0.07	-0.01	-0.03
GB	0.20	0.08	0.20	-0.05	0.07	0.07	-0.02	0.08	0.35	0.10
EBo	0.78	0.11	0.66	-0.01	0.26	0.20	-0.01	0.00	0.12	0.45
KBu	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.02
NB	1.00	0.20	0.25	-0.01	0.09	0.37	-0.02	0.08	0.41	0.22
SBu	0.20	1.00	0.05	-0.02	0.00	0.15	-0.02	0.41	0.03	0.07
NC	0.25	0.05	1.00	-0.02	0.28	0.09	-0.02	-0.01	0.03	0.36
BD	-0.01	-0.02	-0.02	1.00	0.00	-0.02	-0.03	-0.01	-0.01	-0.03
JD	0.09	0.00	0.28	0.00	1.00	0.00	-0.02	-0.01	0.01	0.15
ED	0.37	0.15	0.09	-0.02	0.00	1.00	-0.03	0.11	0.01	0.09
DF	-0.02	-0.02	-0.02	-0.03	-0.02	-0.03	1.00	-0.01	-0.01	-0.03
BF	0.08	0.41	-0.01	-0.01	-0.01	0.11	-0.01	1.00	0.07	0.05
JF	0.41	0.03	0.03	-0.01	0.01	0.01	-0.01	0.07	1.00	0.01
CFo	0.22	0.07	0.36	-0.03	0.15	0.09	-0.03	0.05	0.01	1.00
JGin	0.13	0.41	0.03	-0.01	0.00	0.05	-0.01	0.50	0.03	0.06
SG	0.02	0.05	0.40	0.02	0.19	0.08	-0.01	0.07	0.07	0.23
BH	0.16	0.00	0.26	0.07	0.39	0.11	-0.01	0.00	0.01	0.26
DH	0.04	0.05	0.01	-0.02	-0.01	0.01	-0.02	0.20	0.00	-0.01
AH	0.44	0.15	0.29	-0.04	0.07	0.23	-0.03	0.08	0.02	0.24
RH	0.06	0.27	0.02	-0.04	-0.02	0.13	0.00	0.25	0.01	-0.01
HHu	0.06	0.00	0.04	-0.03	-0.02	0.00	-0.03	-0.01	-0.01	0.07
RJo	0.01	0.05	-0.01	-0.02	-0.01	0.01	0.12	0.25	0.13	-0.01
JMcC	0.36	0.15	0.44	-0.02	0.16	0.13	-0.02	0.31	0.11	0.32
NN	0.02	0.07	0.01	-0.02	-0.01	0.02	0.13	0.11	0.00	0.07
GPa	0.70	0.18	0.42	-0.01	0.13	0.35	-0.01	0.03	0.05	0.32
WR	-0.01	0.05	0.04	-0.01	-0.01	0.05	-0.01	0.00	0.02	0.00
KR	0.14	0.29	0.01	-0.02	-0.01	0.11	-0.02	0.49	0.09	0.04
CBS	0.05	0.08	0.42	-0.03	0.21	0.21	-0.02	0.13	0.02	0.28
AS	0.02	-0.01	0.00	-0.01	-0.01	0.00	-0.01	0.00	0.00	-0.02

WS	0.42	0.10	0.58	-0.01	0.22	0.14	-0.02	0.05	0.03	0.45
MS	0.14	0.06	0.04	-0.02	-0.01	0.15	0.00	0.05	0.02	0.03
GW	0.28	0.07	0.06	0.00	-0.01	0.25	-0.02	0.11	0.09	0.04
TW	0.00	-0.02	0.02	-0.02	-0.01	-0.03	-0.02	-0.01	-0.01	0.00
H deM	0.09	0.00	0.13	-0.01	0.00	-0.01	0.00	0.00	0.00	0.02

	JGin	**SG**	**BH**	**DH**	**AH**	**RH**	**HHu**	**RJo**	**JMcC**	**NN**
GA	0.30	0.05	0.02	0.19	0.09	0.15	0.02	0.21	0.38	0.18
HA	0.00	0.00	0.00	0.00	0.49	0.00	0.09	0.00	0.35	0.00
JB	0.06	0.24	0.13	0.01	0.53	0.06	0.05	0.01	0.47	0.02
AB	0.19	0.06	0.03	0.08	0.22	0.12	0.02	-0.01	0.15	0.03
FB	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	0.00	0.36	0.06
EB	0.02	0.59	0.32	0.00	0.35	0.00	0.01	0.03	0.59	0.01
ABi	0.07	0.01	-0.01	0.06	0.00	0.07	-0.01	0.00	0.14	0.09
GB	0.11	0.25	0.09	0.08	0.15	0.04	0.00	0.15	0.41	0.07
EBo	0.13	0.50	0.29	0.07	0.52	0.07	0.05	-0.01	0.64	0.05
KBu	0.00	-0.01	0.00	-0.01	-0.01	0.27	-0.01	-0.01	-0.01	-0.01
NB	0.13	0.02	0.16	0.04	0.44	0.06	0.06	0.01	0.36	0.02
SBu	0.41	0.05	0.00	0.05	0.15	0.27	0.00	0.05	0.15	0.07
NC	0.03	0.40	0.26	0.01	0.29	0.02	0.04	-0.01	0.44	0.01
BD	-0.01	0.02	0.07	-0.02	-0.04	-0.04	-0.03	-0.02	-0.02	-0.02
JD	0.00	0.19	0.39	-0.01	0.07	-0.02	-0.02	-0.01	0.16	-0.01
ED	0.05	0.08	0.11	0.01	0.23	0.13	0.00	0.01	0.13	0.02
DF	-0.01	-0.01	-0.01	-0.02	-0.03	0.00	-0.03	0.12	-0.02	0.13
BF	0.50	0.07	0.00	0.20	0.08	0.25	-0.01	0.25	0.31	0.11
JF	0.03	0.07	0.01	0.00	0.02	0.01	-0.01	0.13	0.11	0.00
CFo	0.06	0.23	0.26	-0.01	0.24	-0.01	0.07	-0.01	0.32	0.07
JGin	1.00	0.00	0.00	0.40	0.14	0.42	0.06	0.11	0.12	0.24
SG	0.00	1.00	0.21	-0.01	0.17	0.00	-0.01	-0.01	0.32	-0.01
BH	0.00	0.21	1.00	-0.01	0.08	-0.01	-0.01	-0.01	0.18	-0.01
DH	0.40	-0.01	-0.01	1.00	0.05	0.18	0.04	0.08	0.07	0.12
AH	0.14	0.17	0.08	0.05	1.00	0.10	0.02	-0.01	0.36	0.08
RH	0.42	0.00	-0.01	0.18	0.10	1.00	0.00	0.01	0.01	0.13
HHu	0.06	-0.01	-0.01	0.04	0.02	0.00	1.00	-0.02	0.02	0.06
RJo	0.11	-0.01	-0.01	0.08	-0.01	0.01	-0.02	1.00	0.19	0.20
JMcC	0.12	0.32	0.18	0.07	0.36	0.01	0.02	0.19	1.00	0.10
NN	0.24	-0.01	-0.01	0.12	0.08	0.13	0.06	0.20	0.10	1.00
GPa	0.00	0.27	0.14	-0.01	0.52	-0.01	0.07	0.01	0.52	0.01
WR	0.00	0.00	0.00	-0.01	-0.01	0.13	-0.01	-0.01	-0.01	0.03
KR	0.33	-0.01	-0.01	0.06	0.08	0.15	-0.01	0.20	0.29	0.05

CBS	0.03	0.40	0.20	0.01	0.18	0.02	-0.01	-0.02	0.27	-0.01
AS	0.19	0.00	0.00	0.11	0.02	0.25	0.02	-0.01	-0.01	0.06
WS	0.02	0.46	0.24	-0.01	0.37	0.00	0.08	-0.01	0.51	-0.01
MS	0.22	0.02	-0.01	0.24	0.15	0.14	0.03	-0.01	0.08	0.13
GW	0.23	0.20	-0.01	0.14	0.18	0.13	0.05	0.10	0.23	0.15
TW	-0.01	-0.01	-0.01	-0.01	-0.02	-0.03	-0.02	-0.01	0.01	-0.01
H deM	0.00	0.00	0.00	0.00		-0.01	-0.01	0.00	0.18	0.00

	GPa	**WR**	**KR**	**CBS**	**AS**	**WS**	**MS**	**GW**	**TW**	**H deM**
GA	0.07	0.05	0.07	0.05	0.08	0.07	0.23	0.14	-0.01	0.00
HA	0.82	0.00	0.11	0.01	0.00	0.30	0.15	0.33	-0.01	0.00
JB	0.72	-0.01	0.13	0.23	0.00	0.55	0.11	0.24	0.00	0.13
AB	0.25	0.00	0.07	0.05	0.04	0.14	0.11	0.14	-0.03	-0.01
FB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB	0.54	0.01	0.03	0.49	0.00	0.74	0.05	0.09	-0.01	0.02
ABi	0.00	-0.01	-0.01	0.03	0.02	0.00	0.09	0.06	-0.02	0.00
GB	0.26	0.02	0.06	0.18	0.03	0.28	0.09	0.14	-0.04	-0.01
EBo	0.75	0.00	0.05	0.45	0.05	0.76	0.14	0.22	0.01	0.11
KBu	-0.01	0.00	-0.01	-0.01	0.29	-0.01	-0.01	-0.01	-0.01	0.00
NB	0.70	-0.01	0.14	0.05	0.02	0.42	0.14	0.28	0.00	0.09
SBu	0.18	0.05	0.29	0.08	-0.01	0.10	0.06	0.07	-0.02	0.00
NC	0.42	0.04	0.01	0.42	0.00	0.58	0.04	0.06	0.02	0.13
BD	-0.01	-0.01	-0.02	-0.03	-0.01	-0.01	-0.02	0.00	-0.02	-0.01
JD	0.13	-0.01	-0.01	0.21	-0.01	0.22	-0.01	-0.01	-0.01	0.00
ED	0.35	0.05	0.11	0.21	0.00	0.14	0.15	0.25	-0.03	-0.01
DF	-0.01	-0.01	-0.02	-0.02	-0.01	-0.02	0.00	-0.02	-0.02	0.00
BF	0.03	0.00	0.49	0.13	0.00	0.05	0.05	0.11	-0.01	0.00
JF	0.05	0.02	0.09	0.02	0.00	0.03	0.02	0.09	-0.01	0.00
CFo	0.32	0.00	0.04	0.28	-0.02	0.45	0.03	0.04	0.00	0.02
JGin	0.00	0.00	0.33	0.03	0.19	0.02	0.22	0.23	-0.01	0.00
SG	0.27	0.00	-0.01	0.40	0.00	0.46	0.02	0.20	-0.01	0.00
BH	0.14	0.00	-0.01	0.20	0.00	0.24	-0.01	-0.01	-0.01	0.00
DH	-0.01	-0.01	0.06	0.01	0.11	-0.01	0.24	0.14	-0.01	0.00
AH	0.52	-0.01	0.08	0.18	0.02	0.37	0.15	0.18	-0.02	
RH	-0.01	0.13	0.15	0.02	0.25	0.00	0.14	0.13	-0.03	-0.01
HHu	0.07	-0.01	-0.01	-0.01	0.02	0.08	0.03	0.05	-0.02	-0.01
RJo	0.01	-0.01	0.20	-0.02	-0.01	-0.01	-0.01	0.10	-0.01	0.00
JMcC	0.52	-0.01	0.29	0.27	-0.01	0.51	0.08	0.23	0.01	0.18
NN	0.01	0.03	0.05	-0.01	0.06	-0.01	0.13	0.15	-0.01	0.00

GPa	1.00	0.00	0.09	0.25	0.00	0.54	0.14	0.28	-0.01	0.00
WR	0.00	1.00	-0.01	-0.01	0.00	-0.01	0.18	0.19	-0.01	0.00
KR	0.09	-0.01	1.00	-0.01	-0.01	0.03	0.01	0.31	-0.01	0.00
CBS	0.25	-0.01	-0.01	1.00	0.00	0.45	0.06	0.00	0.00	0.00
AS	0.00	0.00	-0.01	0.00	1.00	-0.01	0.08	0.09	-0.01	0.00
WS	0.54	-0.01	0.03	0.45	-0.01	1.00	0.05	0.08	0.01	0.17
MS	0.14	0.18	0.01	0.06	0.08	0.05	1.00	0.26	-0.01	0.00
GW	0.28	0.19	0.31	0.00	0.09	0.08	0.26	1.00	-0.01	0.00
TW	-0.01	-0.01	-0.01	0.00	-0.01	0.01	-0.01	-0.01	1.00	0.14
H deM	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.14	1.00

1971 – 1991 corpus

	GA	**KA**	**KAn**	**SB**	**AB**	**WB**	**EB**	**GB**	**EBo**	**HB**	**PBo**	**HBr**	**KBu**	**MBu**	**NB**
GA	1.00	0.12	0.18	0.08	0.34	0.09	0.51	0.24	0.21	0.40	0.22	0.41	0.12	0.26	0.19
KA	0.12	1.00	-0.01	0.03	0.01	0.03	0.21	0.29	0.00	0.00	-0.01	0.00	0.16	-0.01	0.05
KAn	0.18	-0.01	1.00	0.09	0.38	0.04	0.02	0.04	0.26	0.44	0.34	0.45	0.05	0.36	0.05
SB	0.08	0.03	0.09	1.00	0.11	0.01	0.06	0.04	0.06	0.13	0.07	0.14	0.03	0.08	0.03
AB	0.34	0.01	0.38	0.11	1.00	0.07	0.14	0.06	0.29	0.63	0.37	0.66	0.14	0.43	0.46
WB	0.09	0.03	0.04	0.01	0.07	1.00	0.06	0.17	0.03	0.11	0.06	0.11	0.09	0.06	0.01
EB	0.51	0.21	0.02	0.06	0.14	0.06	1.00	0.35	0.10	0.04	0.05	0.04	0.13	0.15	0.27
GB	0.24	0.29	0.04	0.04	0.06	0.17	0.35	1.00	0.02	0.05	0.02	0.05	0.26	0.05	0.08
EBo	0.21	0.00	0.26	0.06	0.29	0.03	0.10	0.02	1.00	0.22	0.45	0.23	0.04	0.42	0.10
HB	0.40	0.00	0.44	0.13	0.63	0.11	0.04	0.05	0.22	1.00	0.56	0.97	0.16	0.58	-0.01
PBo	0.22	-0.01	0.34	0.07	0.37	0.06	0.05	0.02	0.45	0.56	1.00	0.54	0.09	0.80	0.01
HBr	0.41	0.00	0.45	0.14	0.66	0.11	0.04	0.05	0.23	0.97	0.54	1.00	0.16	0.57	1,00
KBu	0.12	0.16	0.05	0.03	0.14	0.09	0.13	0.26	0.04	0.16	0.09	0.16	1.00	0.10	0.04
MBu	0.26	-0.01	0.36	0.08	0.43	0.06	0.15	0.05	0.42	0.58	0.80	0.57	0.10	1.00	0.10
NB	0.19	0.05	0.05	0.03	0.46	0.01	0.27	0.08	0.10	-0.01	0.01	1.00	0.04	0.10	1.00
SBu	0.05	0.01	0.03	0.05	0.03	0.01	0.11	0.04	0.06	0.00	0.16	0.00	0.03	0.17	0.05
NC	0.01	0.00	0.33	0.06	0.09	0.00	0.03	-0.01	0.25	0.01	0.39	0.02	-0.01	0.26	0.04
MC	0.27	0.11	0.33	0.19	0.35	0.06	0.19	0.16	0.12	0.39	0.21	0.40	0.13	0.27	0.13
MD	-0.01	-0.01	-0.01	0.00	-0.01	0.00	0.01	-0.02	-0.01	0.00	0.00	0.00	0.02	0.00	-0.02
BD	0.41	0.10	0.08	0.05	0.18	0.06	0.40	0.13	0.09	0.15	0.08	0.15	0.05	0.10	0.20
MDa	0.31	0.11	-0.01	0.04	0.05	0.10	0.43	0.14	0.08	0.00	0.00	0.00	0.06	0.05	0.22
GD	0.39	0.05	0.22	0.07	0.38	0.13	0.24	0.25	0.18	0.51	0.29	0.53	0.21	0.40	0.10
TD	0.27	0.08	0.21	0.09	0.34	0.09	0.10	0.13	0.15	0.48	0.28	0.50	0.17	0.31	0.04
TDu	0.16	0.01	0.13	0.01	0.13	0.02	0.07	0.05	0.10	0.14	0.10	0.15	0.06	0.14	0.03
BDy	0.36	0.04	0.38	0.08	0.46	0.07	0.19	0.11	0.41	0.50	0.44	0.51	0.21	0.56	0.16
TE	0.32	-0.01	0.38	0.09	0.52	0.08	0.02	0.02	0.20	0.67	0.37	0.70	0.12	0.42	0.08
JF	0.23	0.01	0.14	0.02	0.13	0.02	0.10	0.08	0.12	0.14	0.10	0.15	0.05	0.15	0.03
CFo	0.11	0.04	0.25	0.09	0.20	0.01	0.06	0.05	0.13	0.16	0.11	0.17	0.07	0.12	0.07
JFr	0.15	0.00	0.23	0.08	0.28	0.04	0.05	0.03	0.13	0.31	0.17	0.32	0.04	0.26	0.08
LF	0.36	0.14	0.07	0.07	0.18	0.09	0.26	0.30	0.22	0.18	0.16	0.18	0.14	0.20	0.10

JGin	0.20	0.10	0.09	0.04	0.17	0.01	0.47	0.16	0.05	0.14	0.08	0.15	0.10	0.39	0.24
SG	-0.01	0.01	-0.01	0.00	0.05	0.00	0.01	0.01	0.49	0.00	0.27	0.00	-0.01	0.25	0.02
RGr	0.16	-0.01	0.25	0.05	0.31	0.04	0.01	0.01	0.42	0.40	0.50	0.42	0.07	0.46	0.02
BH	0.05	-0.01	0.26	0.08	0.12	0.01	0.01	-0.01	0.08	0.16	0.09	0.15	0.02	0.12	0.01
AH	0.10	0.04	0.07	0.19	0.09	0.00	0.28	0.07	0.11	0.00	0.43	0.00	0.09	0.37	0.14
PHa	0.21	-0.01	0.09	0.03	0.16	0.02	0.00	0.00	0.11	0.20	0.11	0.21	0.09	0.12	0.01
RJ	0.48	0.03	0.46	0.14	0.65	0.12	0.15	0.10	0.24	0.92	0.51	0.95	0.17	0.59	0.17
MK	0.35	0.03	0.45	0.21	0.57	0.09	0.04	0.04	0.21	0.81	0.45	0.83	0.14	0.49	0.02
MKe	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.03	0.00	0.00
PL	0.23	-0.01	0.41	0.08	0.40	0.06	0.02	0.02	0.17	0.56	0.31	0.58	0.09	0.33	0.01
ALo	0.34	0.05	0.32	0.21	0.41	0.09	0.23	0.15	0.19	0.53	0.29	0.55	0.12	0.44	0.14
RM	0.40	0.10	0.41	0.17	0.47	0.07	0.28	0.22	0.30	0.54	0.35	0.53	0.14	0.47	0.21
AM	0.38	0.00	0.41	0.13	0.60	0.10	0.03	0.04	0.24	0.90	0.50	0.93	0.15	0.53	-0.01
JMcC	0.30	0.13	0.11	0.10	0.22	0.06	0.27	0.21	0.09	0.22	0.12	0.23	0.11	0.13	0.13
IMcL	0.39	0.06	0.46	0.28	0.58	0.09	0.11	0.11	0.32	0.73	0.44	0.76	0.13	0.49	0.13
DM	0.35	0.03	0.38	0.07	0.46	0.08	0.17	0.10	0.41	0.50	0.44	0.51	0.21	0.56	0.15
DTM	0.48	0.09	0.28	0.08	0.37	0.07	0.38	0.22	0.22	0.41	0.24	0.41	0.18	0.42	0.21
SM	0.23	-0.01	0.41	0.08	0.40	0.06	0.02	0.02	0.17	0.56	0.31	0.58	0.09	0.33	0.01
SN	0.06	0.11	0.04	0.01	0.06	0.01	0.03	0.04	0.02	0.13	0.08	0.14	0.13	0.08	-0.02
DO	0.01	0.19	-0.01	-0.01	0.00	-0.01	0.01	0.05	0.20	0.00	0.12	0.00	0.07	0.11	0.02
AP	-0.01	-0.01	0.04	0.00	0.01	0.00	0.00	0.01	0.03	0.00	0.00	0.00	-0.01	0.15	0.04
JPe	0.00	-0.01	-0.01	0.00	-0.01	0.00	-0.01	-0.01	-0.01	0.00	0.00	0.00	-0.01	0.00	-0.01
LP	0.31	-0.01	0.37	0.09	0.50	0.07	0.02	0.02	0.19	0.64	0.36	0.67	0.13	0.40	0.07
JJP	0.39	0.01	0.41	0.11	0.95	0.07	0.12	0.07	0.35	0.69	0.44	0.71	0.13	0.49	0.42
DP	0.15	0.01	0.25	0.18	0.25	0.02	0.10	0.05	0.15	0.28	0.17	0.28	0.06	0.36	0.10
ER	0.05	0.12	-0.01	0.03	0.02	0.00	0.12	0.09	0.00	0.00	0.00	0.00	0.02	0.00	0.04
SR	0.21	0.17	0.25	0.22	0.35	0.05	0.01	0.08	0.27	0.46	0.35	0.47	0.10	0.34	0.03
PRo	0.02	-0.01	0.04	0.00	0.05	-0.01	0.07	-0.01	0.18	0.00	0.07	0.00	0.00	0.11	0.05
CBS	0.16	-0.01	0.06	0.02	0.12	0.00	0.32	0.06	0.07	0.07	0.10	0.07	0.06	0.34	0.16
PS	0.14	0.16	0.11	0.04	0.17	0.03	0.05	0.04	0.08	0.28	0.16	0.29	0.14	0.18	0.01
TS	0.05	0.00	0.00	0.00	0.00	0.02	0.06	0.09	0.01	0.00	0.00	0.00	0.13	0.00	0.02
RSh	0.01	-0.01	-0.01	0.00	0.00	0.02	0.05	0.01	-0.01	0.00	0.00	0.00	-0.01	0.02	0.00
WS	0.62	0.16	0.44	0.14	0.61	0.11	0.40	0.26	0.30	0.76	0.46	0.79	0.22	0.56	0.25
GSn	0.36	0.02	0.48	0.15	0.57	0.09	0.07	0.09	0.41	0.77	0.56	0.80	0.13	0.63	0.06
PSt	0.40	0.12	0.18	0.06	0.31	0.05	0.39	0.14	0.12	0.39	0.22	0.41	0.14	0.40	0.17
TV	0.16	0.03	0.20	0.04	0.23	0.02	0.09	0.07	0.55	0.22	0.39	0.22	0.04	0.54	0.10
WV	0.00	0.00	0.00	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
AW	0.54	0.16	0.26	0.15	0.48	0.11	0.43	0.27	0.17	0.59	0.33	0.59	0.38	0.40	0.23
TW	0.19	0.13	0.04	0.02	0.11	0.07	0.10	0.21	0.03	0.13	0.07	0.13	1.00	0.08	0.03
RW	0.10	0.04	0.07	0.19	0.09	0.00	0.28	0.07	0.11	0.00	0.43	0.00	0.09	0.37	0.14
GWh	0.01	-0.02	0.09	0.05	0.06	-0.01	0.04	0.00	0.20	0.00	0.13	0.00	0.02	0.13	0.04
GWi	0.32	0.02	0.41	0.16	0.52	0.08	0.06	0.06	0.25	0.72	0.40	0.74	0.13	0.49	0.06
GWo	0.13	0.12	-0.01	0.06	0.06	0.00	0.26	0.15	0.01	0.00	0.00	0.00	0.05	0.03	0.13

	SBu	NC	MC	MD	BD	MDa	GD	TD	TDu	BDy	TE	JF	CFo	JFr	LF
GA	0.05	0.01	0.27	-0.01	0.41	0.31	0.39	0.27	0.16	0.36	0.32	0.23	0.11	0.15	0.36
KA	0.01	0.00	0.11	-0.01	0.10	0.11	0.05	0.08	0.01	0.04	-0.01	0.01	0.04	0.00	0.14
KAn	0.03	0.33	0.33	-0.01	0.08	-0.01	0.22	0.21	0.13	0.38	0.38	0.14	0.25	0.23	0.07
SB	0.05	0.06	0.19	0.00	0.05	0.04	0.07	0.09	0.01	0.08	0.09	0.02	0.09	0.08	0.07
AB	0.03	0.09	0.35	-0.01	0.18	0.05	0.38	0.34	0.13	0.46	0.52	0.13	0.20	0.28	0.18
WB	0.01	0.00	0.06	0.00	0.06	0.10	0.13	0.09	0.02	0.07	0.08	0.02	0.01	0.04	0.09
EB	0.11	0.03	0.19	0.01	0.40	0.43	0.24	0.10	0.07	0.19	0.02	0.10	0.06	0.05	0.26
GB	0.04	-0.01	0.16	-0.02	0.13	0.14	0.25	0.13	0.05	0.11	0.02	0.08	0.05	0.03	0.30
EBo	0.06	0.25	0.12	-0.01	0.09	0.08	0.18	0.15	0.10	0.41	0.20	0.12	0.13	0.13	0.22
HB	0.00	0.01	0.39	0.00	0.15	0.00	0.51	0.48	0.14	0.50	0.67	0.14	0.16	0.31	0.18
PBo	0.16	0.39	0.21	0.00	0.08	0.00	0.29	0.28	0.10	0.44	0.37	0.10	0.11	0.17	0.16
HBr	0.00	0.02	0.40	0.00	0.15	0.00	0.53	0.50	0.15	0.51	0.70	0.15	0.17	0.32	0.18
KBu	0.03	-0.01	0.13	0.02	0.05	0.06	0.21	0.17	0.06	0.21	0.12	0.05	0.07	0.04	0.14
MBu	0.17	0.26	0.27	0.00	0.10	0.05	0.40	0.31	0.14	0.56	0.42	0.15	0.12	0.26	0.20
NB	0.05	0.04	0.13	-0.02	0.20	0.22	0.10	0.04	0.03	0.16	0.08	0.03	0.07	0.08	0.10
SBu	1.00	0.11	0.05	-0.01	0.09	0.14	0.08	0.02	0.01	0.04	-0.01	0.01	0.02	0.01	0.05
NC	0.11	1.00	0.04	-0.01	0.00	0.00	0.00	0.01	0.04	0.09	0.02	0.04	0.02	0.09	0.01
MC	0.05	0.04	1.00	-0.01	0.18	0.15	0.29	0.33	0.13	0.33	0.41	0.14	0.17	0.16	0.32
MD	-0.01	-0.01	-0.01	1.00	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	0.00	-0.02	-0.01	-0.01	-0.01
BD	0.09	0.00	0.18	-0.01	1.00	0.42	0.20	0.12	0.08	0.20	0.13	0.10	0.07	0.19	0.12
MDa	0.14	0.00	0.15	-0.01	0.42	1.00	0.27	0.07	0.05	0.12	0.04	0.06	0.03	0.06	0.09
GD	0.08	0.00	0.29	-0.01	0.20	0.27	1.00	0.48	0.12	0.37	0.38	0.17	0.10	0.19	0.31
TD	0.02	0.01	0.33	-0.01	0.12	0.07	0.48	1.00	0.13	0.31	0.34	0.14	0.12	0.15	0.44
TDu	0.01	0.04	0.13	-0.02	0.08	0.05	0.12	0.13	1.00	0.20	0.11	0.90	0.04	0.10	0.14
BDy	0.04	0.09	0.33	-0.01	0.20	0.12	0.37	0.31	0.20	1.00	0.48	0.22	0.20	0.29	0.26
TE	-0.01	0.02	0.41	0.00	0.13	0.04	0.38	0.34	0.11	0.48	1.00	0.11	0.28	0.36	0.12
JF	0.01	0.04	0.14	-0.02	0.10	0.06	0.17	0.14	0.90	0.22	0.11	1.00	0.04	0.11	0.19
CFo	0.02	0.02	0.17	-0.01	0.07	0.03	0.10	0.12	0.04	0.20	0.28	0.04	1.00	0.13	0.10
JFr	0.01	0.09	0.16	-0.01	0.19	0.06	0.19	0.15	0.10	0.29	0.36	0.11	0.13	1.00	0.08
LF	0.05	0.01	0.32	-0.01	0.12	0.09	0.31	0.44	0.14	0.26	0.12	0.19	0.10	0.08	1.00
JGin	0.11	0.00	0.17	-0.01	0.15	0.13	0.23	0.12	0.05	0.28	0.10	0.06	0.04	0.08	0.13
SG	0.01	0.10	-0.01	0.00	-0.01	0.00	0.02	0.03	0.04	0.25	0.00	0.04	0.04	-0.01	0.13
RGr	0.03	0.13	0.17	-0.01	0.06	-0.01	0.23	0.22	0.08	0.38	0.38	0.08	0.26	0.22	0.17
BH	0.00	0.09	0.09	-0.01	0.03	-0.01	0.06	0.07	0.03	0.15	0.19	0.03	0.24	0.15	0.02
AH	0.26	0.29	0.08	0.00	0.05	0.08	0.08	0.03	0.00	0.14	0.00	0.00	0.05	-0.01	0.07
PHa	0.00	0.00	0.08	0.00	0.03	0.02	0.16	0.10	0.03	0.26	0.33	0.03	0.24	0.06	0.04
RJ	0.03	0.01	0.44	0.00	0.22	0.10	0.59	0.54	0.17	0.55	0.67	0.19	0.17	0.32	0.25
MK	0.00	0.02	0.46	-0.01	0.17	0.00	0.43	0.41	0.13	0.46	0.66	0.13	0.16	0.28	0.15
MKe	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.38	0.00	0.01	0.00	0.00	0.03	0.00	0.18
PL	0.00	0.04	0.42	0.00	0.10	0.00	0.30	0.28	0.08	0.36	0.57	0.08	0.34	0.30	0.24
ALo	0.13	0.01	0.31	-0.01	0.24	0.27	0.46	0.32	0.13	0.39	0.38	0.14	0.14	0.23	0.25
RM	0.06	0.04	0.55	-0.01	0.22	0.18	0.39	0.35	0.18	0.52	0.56	0.20	0.24	0.33	0.39
AM	0.00	0.01	0.37	0.00	0.14	0.00	0.48	0.46	0.13	0.47	0.64	0.13	0.16	0.31	0.22
JMcC	0.06	-0.01	0.29	0.04	0.19	0.18	0.26	0.23	0.11	0.15	0.17	0.11	0.10	0.07	0.27

IMcL	0.04	0.04	0.49	-0.01	0.22	0.10	0.44	0.40	0.17	0.55	0.69	0.19	0.26	0.34	0.24
DM	0.04	0.09	0.32	-0.01	0.20	0.12	0.37	0.31	0.19	1.00	0.49	0.22	0.20	0.29	0.25
DTM	0.05	0.02	0.35	-0.01	0.18	0.22	0.46	0.59	0.16	0.45	0.29	0.22	0.10	0.16	0.42
SM	0.00	0.04	0.42	0.00	0.10	0.00	0.30	0.28	0.08	0.36	0.57	0.08	0.34	0.30	0.24
SN	-0.01	-0.01	0.04	-0.01	0.01	0.02	0.08	0.06	0.02	0.07	0.09	0.01	0.01	0.04	0.01
DO	-0.01	0.02	-0.01	-0.01	-0.01	-0.01	0.02	0.02	0.03	0.13	-0.01	0.03	0.01	0.02	0.05
AP	0.00	0.00	0.00	-0.01	-0.01	0.00	0.06	0.00	0.04	0.17	0.00	0.04	0.03	0.29	0.01
JPe	0.00	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	-0.01	0.00	-0.01	0.00	-0.01	0.00
LP	-0.01	0.02	0.40	0.00	0.12	0.04	0.37	0.33	0.11	0.47	1.00	0.11	0.27	0.34	0.12
JJP	0.02	0.08	0.40	-0.01	0.21	0.12	0.41	0.36	0.17	0.55	0.61	0.18	0.20	0.30	0.20
DP	0.08	0.02	0.22	-0.01	0.08	0.05	0.24	0.16	0.07	0.29	0.35	0.07	0.16	0.22	0.15
ER	0.02	0.00	0.06	0.00	0.05	0.09	0.02	0.03	0.01	0.01	0.00	0.01	0.04	-0.01	0.08
SR	0.07	0.06	0.27	-0.01	0.17	0.02	0.26	0.23	0.09	0.35	0.42	0.10	0.11	0.19	0.17
PRo	0.01	0.02	0.00	-0.01	-0.01	0.02	0.00	0.00	0.00	0.17	-0.01	0.00	0.02	-0.01	0.03
CBS	0.81	0.04	0.10	-0.01	0.04	0.11	0.11	0.04	0.06	0.26	0.05	0.05	0.01	0.03	0.03
PS	-0.01	0.00	0.11	-0.01	0.05	0.03	0.16	0.14	0.03	0.19	0.22	0.03	0.05	0.15	0.07
TS	0.02	0.00	0.01	0.00	0.07	0.15	0.05	0.00	0.00	0.03	0.00	0.00	0.02	0.01	0.00
RSh	-0.01	-0.01	0.00	-0.01	-0.01	0.01	0.00	-0.01	-0.02	0.02	-0.01	-0.02	-0.01	0.00	-0.01
WS	0.06	0.05	0.44	-0.01	0.32	0.17	0.57	0.49	0.19	0.60	0.55	0.22	0.18	0.30	0.35
GSn	0.02	0.13	0.36	-0.01	0.15	0.02	0.44	0.41	0.17	0.60	0.55	0.18	0.16	0.31	0.20
PSt	0.08	0.01	0.22	-0.01	0.20	0.13	0.34	0.24	0.11	0.41	0.29	0.14	0.08	0.14	0.19
TV	0.04	0.08	0.17	-0.01	0.05	0.04	0.18	0.14	0.12	0.51	0.28	0.13	0.11	0.21	0.22
WV	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.08	0.00	0.00
AW	0.10	0.00	0.43	-0.01	0.32	0.30	0.46	0.37	0.15	0.45	0.45	0.15	0.18	0.19	0.32
TW	0.02	0.00	0.10	0.01	0.04	0.06	0.21	0.14	0.04	0.24	0.21	0.03	0.13	0.03	0.11
RW	0.26	0.29	0.07	0.00	0.05	0.08	0.07	0.03	0.00	0.14	0.00	0.00	0.05	-0.01	0.07
GWh	0.13	0.18	0.00	-0.01	-0.01	0.01	0.00	-0.01	0.02	0.15	-0.01	0.02	0.04	0.00	0.01
GWi	0.03	0.01	0.42	-0.01	0.14	0.04	0.47	0.40	0.12	0.49	0.69	0.13	0.23	0.29	0.20
GWo	0.04	0.00	0.14	0.00	0.11	0.11	0.04	0.08	0.00	0.05	0.00	0.00	0.06	-0.01	0.17

	JGin	SG	RGr	BH	AH	PHa	RJ	MK	MKe	PL	ALo	RM	AM	JMcC	IMcL
GA	0.20	-0.01	0.16	0.05	0.10	0.21	0.48	0.35	0.00	0.23	0.34	0.40	0.38	0.30	0.39
KA	0.10	0.01	-0.01	-0.01	0.04	-0.01	0.03	0.03	0.04	-0.01	0.05	0.10	0.00	0.13	0.06
KAn	0.09	-0.01	0.25	0.26	0.07	0.09	0.46	0.45	0.00	0.41	0.32	0.41	0.41	0.11	0.46
SB	0.04	0.00	0.05	0.08	0.19	0.03	0.14	0.21	0.00	0.08	0.21	0.17	0.13	0.10	0.28
AB	0.17	0.05	0.31	0.12	0.09	0.16	0.65	0.57	0.00	0.40	0.41	0.47	0.60	0.22	0.58
WB	0.01	0.00	0.04	0.01	0.00	0.02	0.12	0.09	0.00	0.06	0.09	0.07	0.10	0.06	0.09
EB	0.47	0.01	0.01	0.01	0.28	0.00	0.15	0.04	0.00	0.02	0.23	0.28	0.03	0.27	0.11
GB	0.16	0.01	0.01	-0.01	0.07	0.00	0.10	0.04	0.00	0.02	0.15	0.22	0.04	0.21	0.11
EBo	0.05	0.49	0.42	0.08	0.11	0.11	0.24	0.21	0.02	0.17	0.19	0.30	0.24	0.09	0.32
HB	0.14	0.00	0.40	0.16	0.00	0.20	0.92	0.81	0.00	0.56	0.53	0.54	0.90	0.22	0.73
PBo	0.08	0.27	0.50	0.09	0.43	0.11	0.51	0.45	0.00	0.31	0.29	0.35	0.50	0.12	0.44
HBr	0.15	0.00	0.42	0.15	0.00	0.21	0.95	0.83	0.00	0.58	0.55	0.53	0.93	0.23	0.76
KBu	0.10	-0.01	0.07	0.02	0.09	0.09	0.17	0.14	0.03	0.09	0.12	0.14	0.15	0.11	0.13
MBu	0.39	0.25	0.46	0.12	0.37	0.12	0.59	0.49	0.00	0.33	0.44	0.47	0.53	0.13	0.49
NB	0.24	0.02	0.02	0.01	0.14	0.01	0.17	0.02	0.00	0.01	0.14	0.21	-0.01	0.13	0.13
SBu	0.11	0.01	0.03	0.00	0.26	0.00	0.03	0.00	0.00	0.00	0.13	0.06	0.00	0.06	0.04
NC	0.00	0.10	0.13	0.09	0.29	0.00	0.01	0.02	0.00	0.04	0.01	0.04	0.01	-0.01	0.04
MC	0.17	-0.01	0.17	0.09	0.08	0.08	0.44	0.46	0.00	0.42	0.31	0.55	0.37	0.29	0.49
MD	-0.01	0.00	-0.01	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	-0.01	-0.01	0.00	0.04	-0.01
BD	0.15	-0.01	0.06	0.03	0.05	0.03	0.22	0.17	0.00	0.10	0.24	0.22	0.14	0.19	0.22
MDa	0.13	0.00	-0.01	-0.01	0.08	0.02	0.10	0.00	0.03	0.00	0.27	0.18	0.00	0.18	0.10
GD	0.23	0.02	0.23	0.06	0.08	0.16	0.59	0.43	0.06	0.30	0.46	0.39	0.48	0.26	0.44
TD	0.12	0.03	0.22	0.07	0.03	0.10	0.54	0.41	0.38	0.28	0.32	0.35	0.46	0.23	0.40
TDu	0.05	0.04	0.08	0.03	0.00	0.03	0.17	0.13	0.00	0.08	0.13	0.18	0.13	0.11	0.17
BDy	0.28	0.25	0.38	0.15	0.14	0.26	0.55	0.46	0.01	0.36	0.39	0.52	0.47	0.15	0.55
TE	0.10	0.00	0.38	0.19	0.00	0.33	0.67	0.66	0.00	0.57	0.38	0.56	0.64	0.17	0.69
JF	0.06	0.04	0.08	0.03	0.00	0.03	0.19	0.13	0.00	0.08	0.14	0.20	0.13	0.11	0.19
CFo	0.04	0.04	0.26	0.24	0.05	0.24	0.17	0.16	0.03	0.34	0.14	0.24	0.16	0.10	0.26
JFr	0.08	-0.01	0.22	0.15	-0.01	0.06	0.32	0.28	0.00	0.30	0.23	0.33	0.31	0.07	0.34
LF	0.13	0.13	0.17	0.02	0.07	0.04	0.25	0.15	0.18	0.24	0.25	0.39	0.22	0.27	0.24
JGin	1.00	0.00	0.06	0.04	0.28	0.03	0.23	0.15	0.00	0.08	0.31	0.28	0.14	0.12	0.16
SG	0.00	1.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	-0.01	0.05
RGr	0.06	0.31	1.00	0.15	0.10	0.08	0.40	0.36	0.00	0.36	0.26	0.35	0.39	0.09	0.42
BH	0.04	0.00	0.15	1.00	0.06	0.03	0.14	0.23	0.00	0.38	0.12	0.15	0.13	0.02	0.25
AH	0.28	0.00	0.10	0.06	1.00	0.00	0.04	0.02	0.00	0.00	0.23	0.13	0.00	0.10	0.14
PHa	0.03	0.00	0.08	0.03	0.00	1.00	0.20	0.18	0.00	0.12	0.11	0.11	0.19	0.04	0.15
RJ	0.23	0.00	0.40	0.14	0.04	0.20	1.00	0.80		0.56	0.64	0.60	0.88	0.28	0.77
MK	0.15	0.00	0.36	0.23	0.02	0.18	0.80	1.00	0.00	0.71	0.47	0.46	0.77	0.21	0.71
MKe	0.00	0.00	0.00	0.00	0.00	0.00		0.00	1.00	0.00	0.00	0.03	0.00	0.00	0.01
PL	0.08	0.00	0.36	0.38	0.00	0.12	0.56	0.71	0.00	1.00	0.37	0.38	0.59	0.17	0.60
ALo	0.31	0.00	0.26	0.12	0.23	0.11	0.64	0.47	0.00	0.37	1.00	0.54	0.53	0.24	0.61
RM	0.28	0.09	0.35	0.15	0.13	0.11	0.60	0.46	0.03	0.38	0.54	1.00	0.52	0.33	0.71
AM	0.14	0.00	0.39	0.13	0.00	0.19	0.88	0.77	0.00	0.59	0.53	0.52	1.00	0.21	0.71
JMcC	0.12	-0.01	0.09	0.02	0.10	0.04	0.28	0.21	0.00	0.17	0.24	0.33	0.21	1.00	0.24

IMcL	0.16	0.05	0.42	0.25	0.14	0.15	0.77	0.71	0.01	0.60	0.61	0.71	0.71	0.24	1.00
DM	0.27	0.25	0.38	0.15	0.13	0.26	0.55	0.46	0.01	0.37	0.39	0.51	0.47	0.13	0.55
DTM	0.43	0.03	0.19	0.08	0.21	0.08	0.53	0.37	0.20	0.26	0.45	0.49	0.38	0.24	0.42
SM	0.08	0.00	0.36	0.38	0.00	0.12	0.56	0.71	0.00	1.00	0.37	0.38	0.59	0.17	0.60
SN	0.04	0.00	0.05	0.01	-0.01	0.02	0.14	0.10	0.00	0.08	0.08	0.06	0.13	0.02	0.09
DO	0.04	0.24	0.13	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	-0.01	0.03	0.00	0.01	0.01
AP	0.01	0.00	0.00	0.00	0.00	0.00	0.02	-0.01	0.00	0.00	0.06	0.04	0.00	-0.01	0.02
JPe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	-0.01
LP	0.10	0.00	0.36	0.18	0.00	0.31	0.64	0.63	0.00	0.54	0.36	0.54	0.62	0.16	0.66
JJP	0.16	0.12	0.38	0.13	0.08	0.16	0.71	0.61	0.00	0.42	0.45	0.57	0.66	0.21	0.69
DP	0.27	0.02	0.17	0.10	0.20	0.09	0.35	0.30	0.00	0.19	0.38	0.39	0.26	0.13	0.40
ER	0.03	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.00	0.00	0.03	0.08	0.00	0.13	0.02
SR	0.07	0.07	0.31	0.13	0.20	0.10	0.45	0.49	0.00	0.34	0.39	0.38	0.48	0.10	0.68
PRo	0.12	0.15	0.08	0.02	0.08	0.00	0.01	-0.01	0.00	0.00	0.02	0.06	0.00	-0.01	0.01
CBS	0.57	0.01	0.04	0.01	0.37	0.01	0.15	0.06	0.00	0.04	0.20	0.20	0.07	0.01	0.08
PS	0.08	0.01	0.13	0.03	0.00	0.06	0.28	0.23	0.00	0.18	0.17	0.18	0.27	0.07	0.23
TS	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.05	0.01	0.00	0.02	0.00
RSh	0.07	0.00	-0.01	-0.01	0.03	0.00	0.02	-0.01	0.00	0.00	0.01	0.01	0.00	0.02	-0.01
WS	0.34	0.05	0.37	0.13	0.13	0.16	0.86	0.67	0.01	0.46	0.65	0.66	0.73	0.36	0.70
GSn	0.18	0.21	0.46	0.15	0.03	0.19	0.79	0.70	0.00	0.46	0.52	0.54	0.74	0.18	0.67
PSt	0.59	0.03	0.16	0.06	0.19	0.13	0.50	0.34	0.00	0.23	0.35	0.34	0.37	0.14	0.34
TV	0.23	0.51	0.46	0.04	0.08	0.04	0.27	0.21	0.00	0.14	0.30	0.48	0.21	0.05	0.36
WV	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.03
AW	0.30	0.00	0.24	0.08	0.23	0.18	0.64	0.49	0.01	0.35	0.47	0.57	0.55	0.40	0.54
TW	0.08	-0.01	0.06	0.01	0.07	0.57	0.14	0.11	0.02	0.07	0.09	0.11	0.12	0.09	0.11
RW	0.28	0.00	0.10	0.06	1.00	0.00	0.04	0.02	0.00	0.00	0.22	0.13	0.00	0.10	0.14
GWh	0.08	0.04	0.05	0.06	0.19	0.00	0.01	0.01	0.00	-0.01	0.06	0.06	0.00	-0.01	0.04
GWi	0.19	-0.01	0.36	0.16	0.02	0.22	0.76	0.68	0.03	0.49	0.50	0.56	0.69	0.22	0.70
GWo	0.17	0.00	0.00	0.00	0.16	0.00	0.04	0.00	0.00	0.00	0.08	0.19	0.00	0.26	0.05

	DM	DTM	SM	SN	DO	AP	JPe	LP	JJP	DP	ER	SR	PRo	CBS	PS
GA	0.35	0.48	0.23	0.06	0.01	-0.01	0.00	0.31	0.39	0.15	0.05	0.21	0.02	0.16	0.14
KA	0.03	0.09	-0.01	0.11	0.19	-0.01	-0.01	-0.01	0.01	0.01	0.12	0.17	-0.01	-0.01	0.16
KAn	0.38	0.28	0.41	0.04	-0.01	0.04	-0.01	0.37	0.41	0.25	-0.01	0.25	0.04	0.06	0.11
SB	0.07	0.08	0.08	0.01	-0.01	0.00	0.00	0.09	0.11	0.18	0.03	0.22	0.00	0.02	0.04
AB	0.46	0.37	0.40	0.06	0.00	0.01	-0.01	0.50	0.95	0.25	0.02	0.35	0.05	0.12	0.17
WB	0.08	0.07	0.06	0.01	-0.01	0.00	0.00	0.07	0.07	0.02	0.00	0.05	-0.01	0.00	0.03
EB	0.17	0.38	0.02	0.03	0.01	0.00	-0.01	0.02	0.12	0.10	0.12	0.01	0.07	0.32	0.05
GB	0.10	0.22	0.02	0.04	0.05	0.01	-0.01	0.02	0.07	0.05	0.09	0.08	-0.01	0.06	0.04
EBo	0.41	0.22	0.17	0.02	0.20	0.03	-0.01	0.19	0.35	0.15	0.00	0.27	0.18	0.07	0.08
HB	0.50	0.41	0.56	0.13	0.00	0.00	0.00	0.64	0.69	0.28	0.00	0.46	0.00	0.07	0.28
PBo	0.44	0.24	0.31	0.08	0.12	0.00	0.00	0.36	0.44	0.17	0.00	0.35	0.07	0.10	0.16
HBr	0.51	0.41	0.58	0.14	0.00	0.00	0.00	0.67	0.71	0.28	0.00	0.47	0.00	0.07	0.29
KBu	0.21	0.18	0.09	0.13	0.07	-0.01	-0.01	0.13	0.13	0.06	0.02	0.10	0.00	0.06	0.14
MBu	0.56	0.42	0.33	0.08	0.11	0.15	0.00	0.40	0.49	0.36	0.00	0.34	0.11	0.34	0.18
NB	0.15	0.21	0.01	-0.02	0.02	0.04	-0.01	0.07	0.42	0.10	0.04	0.03	0.05	0.16	0.01
SBu	0.04	0.05	0.00	-0.01	-0.01	0.00	0.00	-0.01	0.02	0.08	0.02	0.07	0.01	0.81	-0.01
NC	0.09	0.02	0.04	-0.01	0.02	0.00	0.00	0.02	0.08	0.02	0.00	0.06	0.02	0.04	0.00
MC	0.32	0.35	0.42	0.04	-0.01	0.00	-0.01	0.40	0.40	0.22	0.06	0.27	0.00	0.10	0.11
MD	-0.01	-0.01	0.00	-0.01	-0.01	-0.01	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.01	-0.01	-0.01
BD	0.20	0.18	0.10	0.01	-0.01	-0.01	-0.01	0.12	0.21	0.08	0.05	0.17	-0.01	0.04	0.05
MDa	0.12	0.22	0.00	0.02	-0.01	0.00	0.00	0.04	0.12	0.05	0.09	0.02	0.02	0.11	0.03
GD	0.37	0.46	0.30	0.08	0.02	0.06	-0.01	0.37	0.41	0.24	0.02	0.26	0.00	0.11	0.16
TD	0.31	0.59	0.28	0.06	0.02	0.00	0.00	0.33	0.36	0.16	0.03	0.23	0.00	0.04	0.14
TDu	0.19	0.16	0.08	0.02	0.03	0.04	-0.01	0.11	0.17	0.07	0.01	0.09	0.00	0.06	0.03
BDy	1.00	0.45	0.36	0.07	0.13	0.17	-0.01	0.47	0.55	0.29	0.01	0.35	0.17	0.26	0.19
TE	0.49	0.29	0.57	0.09	-0.01	0.00	0.00	1.00	0.61	0.35	0.00	0.42	-0.01	0.05	0.22
JF	0.22	0.22	0.08	0.01	0.03	0.04	-0.01	0.11	0.18	0.07	0.01	0.10	0.00	0.05	0.03
CFo	0.20	0.10	0.34	0.01	0.01	0.03	0.00	0.27	0.20	0.16	0.04	0.11	0.02	0.01	0.05
JFr	0.29	0.16	0.30	0.04	0.02	0.29	-0.01	0.34	0.30	0.22	-0.01	0.19	-0.01	0.03	0.15
LF	0.25	0.42	0.24	0.01	0.05	0.01	0.00	0.12	0.20	0.15	0.08	0.17	0.03	0.03	0.07
JGin	0.27	0.43	0.08	0.04	0.04	0.01	0.00	0.10	0.16	0.27	0.03	0.07	0.12	0.57	0.08
SG	0.25	0.03	0.00	0.00	0.24	0.00	0.00	0.00	0.12	0.02	0.00	0.07	0.15	0.01	0.01
RGr	0.38	0.19	0.36	0.05	0.13	0.00	0.00	0.36	0.38	0.17	0.00	0.31	0.08	0.04	0.13
BH	0.15	0.08	0.38	0.01	-0.01	0.00	0.00	0.18	0.13	0.10	0.00	0.13	0.02	0.01	0.03
AH	0.13	0.21	0.00	-0.01	0.00	0.00	0.00	0.00	0.08	0.20	0.04	0.20	0.08	0.37	0.00
PHa	0.26	0.08	0.12	0.02	0.00	0.00	0.00	0.31	0.16	0.09	0.00	0.10	0.00	0.01	0.06
RJ	0.55	0.53	0.56	0.14	0.00	0.02	0.00	0.64	0.71	0.35	0.02	0.45	0.01	0.15	0.28
MK	0.46	0.37	0.71	0.10	-0.01	-0.01	0.00	0.63	0.61	0.30	0.00	0.49	-0.01	0.06	0.23
MKe	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PL	0.37	0.26	1.00	0.08	0.00	0.00	0.00	0.54	0.42	0.19	0.00	0.34	0.00	0.04	0.18
ALo	0.39	0.45	0.37	0.08	-0.01	0.06	0.00	0.36	0.45	0.38	0.03	0.39	0.02	0.20	0.17
RM	0.51	0.49	0.38	0.06	0.03	0.04	-0.01	0.54	0.57	0.39	0.08	0.38	0.06	0.20	0.18
AM	0.47	0.38	0.59	0.13	0.00	0.00	0.00	0.62	0.66	0.26	0.00	0.48	0.00	0.07	0.27
JMcC	0.13	0.24	0.17	0.02	0.01	-0.01	-0.01	0.16	0.21	0.13	0.13	0.10	-0.01	0.01	0.07

IMcL	0.55	0.42	0.60	0.09	0.01	0.02	-0.01	0.66	0.69	0.40	0.02	0.68	0.01	0.08	0.23
DM	1.00	0.44	0.37	0.07	0.12	0.17	-0.01	0.48	0.55	0.29	0.00	0.36	0.17	0.25	0.19
DTM	0.44	1.00	0.26	0.05	0.01	0.02	-0.01	0.28	0.40	0.22	0.04	0.20	0.09	0.43	0.12
SM	0.37	0.26	1.00	0.08	0.00	0.00	0.00	0.54	0.42	0.19	0.00	0.34	0.00	0.04	0.18
SN	0.07	0.05	0.08	1.00	0.31	-0.01	0.01	0.08	0.08	0.02	-0.01	0.06	0.00	-0.01	0.80
DO	0.12	0.01	0.00	0.31	1.00	-0.01	0.00	-0.01	0.02	0.00	-0.01	0.02	0.06	-0.01	0.38
AP	0.17	0.02	0.00	-0.01	-0.01	1.00	0.00	0.00	0.01	0.13	0.00	-0.01	-0.01	0.00	0.06
JPe	-0.01	-0.01	0.00	0.01	0.00	0.00	1.00	0.00	-0.01	-0.01	0.00	0.00	0.00	0.00	0.02
LP	0.48	0.28	0.54	0.08	-0.01	0.00	0.00	1.00	0.59	0.33	0.00	0.41	-0.01	0.04	0.21
JJP	0.55	0.40	0.42	0.08	0.02	0.01	-0.01	0.59	1.00	0.29	0.02	0.42	0.05	0.11	0.21
DP	0.29	0.22	0.19	0.02	0.00	0.13	-0.01	0.33	0.29	1.00	0.02	0.30	0.03	0.17	0.09
ER	0.00	0.04	0.00	-0.01	-0.01	0.00	0.00	0.00	0.02	0.02	1.00	0.00	-0.01	0.00	0.00
SR	0.36	0.20	0.34	0.06	0.02	-0.01	0.00	0.41	0.42	0.30	0.00	1.00	0.01	0.05	0.15
PRo	0.17	0.09	0.00	0.00	0.06	-0.01	0.00	-0.01	0.05	0.03	-0.01	0.01	1.00	0.18	0.00
CBS	0.25	0.43	0.04	-0.01	-0.01	0.00	0.00	0.04	0.11	0.17	0.00	0.05	0.18	1.00	0.01
PS	0.19	0.12	0.18	0.80	0.38	0.06	0.02	0.21	0.21	0.09	0.00	0.15	0.00	0.01	1.00
TS	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSh	0.02	0.04	0.00	-0.01	-0.01	-0.01	0.00	-0.01	0.00	0.00	0.13	-0.01	0.01	0.07	-0.02
WS	0.58	0.59	0.46	0.13	0.07	0.03	0.00	0.52	0.64	0.31	0.07	0.39	0.06	0.22	0.27
GSn	0.60	0.44	0.46	0.11	0.08	0.02	0.00	0.53	0.64	0.29	0.01	0.45	0.07	0.10	0.23
PSt	0.39	0.46	0.23	0.07	0.03	0.00	0.00	0.27	0.32	0.22	0.01	0.18	0.09	0.45	0.16
TV	0.51	0.30	0.14	0.03	0.22	0.08	0.00	0.27	0.33	0.30	-0.01	0.28	0.17	0.27	0.11
WV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00
AW	0.44	0.47	0.35	0.12	-0.01	-0.01	-0.01	0.43	0.55	0.24	0.10	0.31	0.02	0.18	0.23
TW	0.23	0.14	0.07	0.10	0.06	0.00	-0.01	0.21	0.11	0.05	0.02	0.08	0.00	0.05	0.12
RW	0.13	0.21	0.00	-0.01	0.00	0.00	0.00	0.00	0.08	0.19	0.04	0.20	0.08	0.37	0.00
GWh	0.15	0.05	-0.01	-0.03	0.01	0.04	-0.01	-0.01	0.07	0.08	-0.01	0.09	0.15	0.14	-0.02
GWi	0.49	0.36	0.49	0.09	-0.01	0.05	-0.01	0.67	0.59	0.44	0.01	0.45	-0.01	0.07	0.23
GWo	0.04	0.16	0.00	0.01	-0.01	0.00	0.00	0.00	0.04	0.05	0.11	0.00	0.03	0.13	0.02

	TS	RSh	WS	GSn	PSt	TV	WV	AW	TW	RW	GWh	GWi	GWo
GA	0.05	0.01	0.62	0.36	0.40	0.16	0.00	0.54	0.19	0.10	0.01	0.32	0.13
KA	0.00	-0.01	0.16	0.02	0.12	0.03	0.00	0.16	0.13	0.04	-0.02	0.02	0.12
KAn	0.00	-0.01	0.44	0.48	0.18	0.20	0.00	0.26	0.04	0.07	0.09	0.41	-0.01
SB	0.00	0.00	0.14	0.15	0.06	0.04	0.14	0.15	0.02	0.19	0.05	0.16	0.06
AB	0.00	0.00	0.61	0.57	0.31	0.23	0.05	0.48	0.11	0.09	0.06	0.52	0.06
WB	0.02	0.02	0.11	0.09	0.05	0.02	0.00	0.11	0.07	0.00	-0.01	0.08	0.00
EB	0.06	0.05	0.40	0.07	0.39	0.09	0.00	0.43	0.10	0.28	0.04	0.06	0.26
GB	0.09	0.01	0.26	0.09	0.14	0.07	0.00	0.27	0.21	0.07	0.00	0.06	0.15
EBo	0.01	-0.01	0.30	0.41	0.12	0.55	0.00	0.17	0.03	0.11	0.20	0.25	0.01
HB	0.00	0.00	0.76	0.77	0.39	0.22	0.00	0.59	0.13	0.00	0.00	0.72	0.00
PBo	0.00	0.00	0.46	0.56	0.22	0.39	0.00	0.33	0.07	0.43	0.13	0.40	0.00
HBr	0.00	0.00	0.79	0.80	0.41	0.22	0.00	0.59	0.13	0.00	0.00	0.74	0.00
KBu	0.13	-0.01	0.22	0.13	0.14	0.04	0.00	0.38	1.00	0.09	0.02	0.13	0.05
MBu	0.00	0.02	0.56	0.63	0.40	0.54	0.00	0.40	0.08	0.37	0.13	0.49	0.03
NB	0.02	0.00	0.25	0.06	0.17	0.10	0.04	0.23	0.03	0.14	0.04	0.06	0.13
SBu	0.02	-0.01	0.06	0.02	0.08	0.04	0.00	0.10	0.02	0.26	0.13	0.03	0.04
NC	0.00	-0.01	0.05	0.13	0.01	0.08	0.00	0.00	0.00	0.29	0.18	0.01	0.00
MC	0.01	0.00	0.44	0.36	0.22	0.17	0.06	0.43	0.10	0.07	0.00	0.42	0.14
MD	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	0.01	0.00	-0.01	-0.01	0.00
BD	0.07	-0.01	0.32	0.15	0.20	0.05	0.00	0.32	0.04	0.05	-0.01	0.14	0.11
MDa	0.15	0.01	0.17	0.02	0.13	0.04	0.00	0.30	0.06	0.08	0.01	0.04	0.11
GD	0.05	0.00	0.57	0.44	0.34	0.18	0.00	0.46	0.21	0.07	0.00	0.47	0.04
TD	0.00	-0.01	0.49	0.41	0.24	0.14	0.04	0.37	0.14	0.03	-0.01	0.40	0.08
TDu	0.00	-0.02	0.19	0.17	0.11	0.12	0.00	0.15	0.04	0.00	0.02	0.12	0.00
BDy	0.03	0.02	0.60	0.60	0.41	0.51	0.00	0.45	0.24	0.14	0.15	0.49	0.05
TE	0.00	-0.01	0.55	0.55	0.29	0.28	0.00	0.45	0.21	0.00	-0.01	0.69	0.00
JF	0.00	-0.02	0.22	0.18	0.14	0.13	0.00	0.15	0.03	0.00	0.02	0.13	0.00
CFo	0.02	-0.01	0.18	0.16	0.08	0.11	0.08	0.18	0.13	0.05	0.04	0.23	0.06
JFr	0.01	0.00	0.30	0.31	0.14	0.21	0.00	0.19	0.03	-0.01	0.00	0.29	-0.01
LF	0.00	-0.01	0.35	0.20	0.19	0.22	0.00	0.32	0.11	0.07	0.01	0.20	0.17
JGin	0.00	0.07	0.34	0.18	0.59	0.23	0.00	0.30	0.08	0.28	0.08	0.19	0.17
SG	0.00	0.00	0.05	0.21	0.03	0.51	0.00	0.00	-0.01	0.00	0.04	-0.01	0.00
RGr	0.00	-0.01	0.37	0.46	0.16	0.46	0.00	0.24	0.06	0.10	0.05	0.36	0.00
BH	0.00	-0.01	0.13	0.15	0.06	0.04	0.00	0.08	0.01	0.06	0.06	0.16	0.00
AH	0.00	0.03	0.13	0.03	0.19	0.08	0.00	0.23	0.07	1.00	0.19	0.02	0.16
PHa	0.00	0.00	0.16	0.19	0.13	0.04	0.00	0.18	0.57	0.00	0.00	0.22	0.00
RJ	0.02	0.02	0.86	0.79	0.50	0.27	0.01	0.64	0.14	0.04	0.01	0.76	0.04
MK	0.00	-0.01	0.67	0.70	0.34	0.21	0.00	0.49	0.11	0.02	0.01	0.68	0.00
MKe	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.03	0.00
PL	0.00	0.00	0.46	0.46	0.23	0.14	0.00	0.35	0.07	0.00	-0.01	0.49	0.00
ALo	0.05	0.01	0.65	0.52	0.35	0.30	0.00	0.47	0.09	0.22	0.06	0.50	0.08
RM	0.01	0.01	0.66	0.54	0.34	0.48	0.06	0.57	0.11	0.13	0.06	0.56	0.19
AM	0.00	0.00	0.73	0.74	0.37	0.21	0.00	0.55	0.12	0.00	0.00	0.69	0.00
JMcC	0.02	0.02	0.36	0.18	0.14	0.05	0.00	0.40	0.09	0.10	-0.01	0.22	0.26

IMcL	0.00	-0.01	0.70	0.67	0.34	0.36	0.03	0.54	0.11	0.14	0.04	0.70	0.05
DM	0.03	0.02	0.58	0.60	0.39	0.51	0.00	0.44	0.23	0.13	0.15	0.49	0.04
DTM	0.02	0.04	0.59	0.44	0.46	0.30	0.00	0.47	0.14	0.21	0.05	0.36	0.16
SM	0.00	0.00	0.46	0.46	0.23	0.14	0.00	0.35	0.07	0.00	-0.01	0.49	0.00
SN	0.00	-0.01	0.13	0.11	0.07	0.03	0.00	0.12	0.10	-0.01	-0.03	0.09	0.01
DO	0.00	-0.01	0.07	0.08	0.03	0.22	0.00	-0.01	0.06	0.00	0.01	-0.01	-0.01
AP	0.00	-0.01	0.03	0.02	0.00	0.08	0.00	-0.01	0.00	0.00	0.04	0.05	0.00
JPe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.01	0.00
LP	0.00	-0.01	0.52	0.53	0.27	0.27	0.00	0.43	0.21	0.00	-0.01	0.67	0.00
JJP	0.00	0.00	0.64	0.64	0.32	0.33	0.04	0.55	0.11	0.08	0.07	0.59	0.04
DP	0.00	0.00	0.31	0.29	0.22	0.30	0.03	0.24	0.05	0.19	0.08	0.44	0.05
ER	0.00	0.13	0.07	0.01	0.01	-0.01	0.00	0.10	0.02	0.04	-0.01	0.01	0.11
SR	0.00	-0.01	0.39	0.45	0.18	0.28	0.00	0.31	0.08	0.20	0.09	0.45	0.00
PRo	0.00	0.01	0.06	0.07	0.09	0.17	0.00	0.02	0.00	0.08	0.15	-0.01	0.03
CBS	0.00	0.07	0.22	0.10	0.45	0.27	0.00	0.18	0.05	0.37	0.14	0.07	0.13
PS	0.00	-0.02	0.27	0.23	0.16	0.11	0.00	0.23	0.12	0.00	-0.02	0.23	0.02
TS	1.00	0.00	0.02	0.00	0.01	0.00	0.00	0.04	0.10	0.00	0.00	0.00	0.00
RSh	0.00	1.00	0.02	0.03	0.04	0.01	0.00	0.01	-0.01	0.03	0.00	-0.01	0.01
WS	0.02	0.02	1.00	0.73	0.55	0.33	0.00	0.71	0.18	0.13	0.05	0.65	0.15
GSn	0.00	0.03	0.73	1.00	0.36	0.45	0.00	0.48	0.12	0.03	0.04	0.62	0.00
PSt	0.01	0.04	0.55	0.36	1.00	0.20	0.00	0.42	0.14	0.19	0.05	0.33	0.10
TV	0.00	0.01	0.33	0.45	0.20	1.00	0.00	0.18	0.03	0.08	0.07	0.32	0.02
WV	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.02	0.00	0.00	0.00	0.00	0.00
AW	0.04	0.01	0.71	0.48	0.42	0.18	0.02	1.00	0.35	0.23	0.00	0.49	0.25
TW	0.10	-0.01	0.18	0.12	0.14	0.03	0.00	0.35	1.00	0.07	0.01	0.12	0.04
RW	0.00	0.03	0.13	0.03	0.19	0.08	0.00	0.23	0.07	1.00	0.19	0.02	0.16
GWh	0.00	0.00	0.05	0.04	0.05	0.07	0.00	0.00	0.01	0.19	1.00	0.01	0.01
GWi	0.00	-0.01	0.65	0.62	0.33	0.32	0.00	0.49	0.12	0.02	0.01	1.00	0.02
GWo	0.00	0.01	0.15	0.00	0.10	0.02	0.00	0.25	0.04	0.16	0.01	0.02	1.00